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NUMBER 2008 EXCLUSIVE SOFTWARE / VIDEO GUIDES / RESOURCE KIT / GAMES

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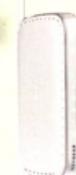
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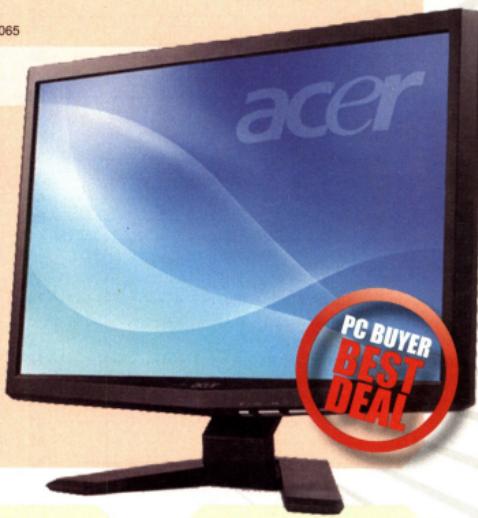
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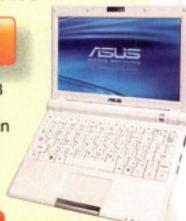
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- GPS DEVICES
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Using the DVD

The PC User cover DVD requires a DVD-ROM drive. Internet Explorer 6 or later is recommended for easy installation of the software. Most of the software on the disc requires a fairly recent version of Windows, although each program has individual requirements, which are indicated on the disc. Please note the other requirements and limitations on the DVD cover. Don't have a DVD drive? We'll mail you a free CD with selected software from the DVD. Just go to www.pcuser.com.au/cdmail. This month's CD code is PCUDC1108A. Need help? See the back cover of the DVD for details on how to use the DVD and how to get help.

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Free Fire Screensaver, Avant DVD/DivX Player, Advanced DVD Player, Graph

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Excel macro of the month, Word macro of the month, nLite, CDBurnerXP Pro, Reaper, PC User RockPod 2009

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Your guide to *PC User's* product reviews and editorial policies.

At *Australian PC User*, we pride ourselves in the quality and independence of our editorial. This is a commercial as well as an ethical policy, because we know that readers expect nothing less. *PC User* is Australia's top-selling technology magazine and our credibility is a key reason for our market leadership. To ensure we maintain our credibility, we insist on writers following strict editorial policies. There are several policies, but here are the most important:

- * All reviews and comparisons must be scrupulously fair to every product and brand, but writers should never shy away from the truth. Above all, we must provide independent buying advice that readers can trust.
- * Every product must be evaluated as thoroughly as possible, using a repeatable and transparent procedure that reflects real-world usage by readers.
- * Every tip, tutorial and piece of advice must be thoroughly researched and tested by the writer.

EXCLUSIVE BENCHMARKS

To achieve the second editorial policy above, we use objective, quantifiable benchmarks whenever possible. Unfortunately, we found existing benchmark software didn't go far enough for our aim of measuring real-world PC performance. So our hardware writer, Darren Yates, developed our own benchmark suite, UserBench, exclusively for *PC User*.

UserBench is Australia's only home-grown benchmark suite, and we reckon it's the world's best. It brings a level of realism and precision never seen before in PC benchmarks. All of the UserBench benchmarks are based on common, time-consuming tasks — video and image conversions and other tasks that tie up valuable PC time — as well as real games. They allow us to provide in-depth details including actual times, so you can see for yourself how long the system takes to accomplish these tasks. Here's a guide to each benchmark:

* **UserBench Encode 2008.** This benchmark combines audio and video encoding, converting a 12-minute stereo .wav file into five different audio formats: AAC, AC-3, OGG, WMA and MP3. It then encodes a 1,500-frame .avi file into five different video formats: MPEG-2, MPEG-1, WMV, H.264 and MPEG-4 ISO. Each conversion is timed and recorded in frames per second (fps) or megabytes per second (MBps) as appropriate to produce an overall UserBench

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How to read the benchmark results

For most benchmarks that measure performance using time (minutes and seconds), lower scores mean faster performance at that given task. The exception is *UserBench Battery* because you want a notebook's battery to last as long as possible. For benchmarks that measure frame rate (frames per second) or data transfer (kilobytes per second), higher scores are better. In particular, for gaming, you should look for at least 50fps on average, but preferably more (to allow for future games). In our new *UserBench Encode* benchmark, look for a Final Score that's as high as possible.



Encode 2008 score, based on a reference of 10 being a 2GHz Pentium 4 desktop PC with 512MB of memory running Windows XP SP2.

* **UserBench Image 2006.** This loads a 50MB tiff file into Photoshop CS2, processes it 10 times using different filters, saving it as a .jpg file each time. It then completes the whole process three times. The final result is the fastest of the three runs in minutes and seconds.

* **UserBench Security VR 2007.** This scans 1GB of files using the antivirus tools NOD32 and AVG 7.5 Free Edition. It then uses WinRAR to compress the same files into an archive. It records the scan times and archiving time in minutes and seconds.

* **UserBench Crysis 2008.** *Crysis* is the first game to provide true DirectX 10 graphics and this benchmark automates the *Crysis* demo to provide unrivalled 3D games testing. It enables us to test at a multitude of resolution settings from 640 x 480 to 1,920 x 1,200 pixels. The final results for each test are provided in average and lowest fps.

* **UserBench UT3Demo 2008.** This automates the new *Unreal Tournament III* demo to test DirectX 9/10 speed with an infinite number of tests per run at different resolutions from 640 x 480 to 1,920 x 1,200 pixels. Each test returns an average fps and charts for percentile fps bands.

* **UserBench Half-Life 2: Lost Coast 2008.** Our *Half-Life 2* benchmark automates the latest *Half-Life 2* episode, testing DirectX 9 performance using infinite tests per run at various resolutions, with settings for antialiasing and anisotropy.

* **UserBench Battery 2008.** This new benchmark replaces VeriTest BatteryMark 4.01. It times the battery life of a notebook while constantly playing a WMV video clip in the background. The final result is recorded in hours and minutes.

* **Other benchmarks.** We still use third-party benchmarks where they are best of breed. These include Business Disk WinMark 99, which is used to test the data transfer rates of hard drives.



CIRCULATION: 51,554 copies sold per issue in Australia, plus 4,080 copies sold overseas (ABC Circulation Audit, June 2008).

READERSHIP: 289,000 readers per issue (Roy Morgan Readership Survey, June 2008).



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More than a browser war

Google's launch of Chrome may have far-reaching consequences, says Glenn Rees.

I guess we shouldn't have been surprised by the release of Google's own web browser, Chrome. However, it certainly came out of the blue. Here I was thinking Google was happy enough launching a new web application every couple of months and making bucketloads of cash from its online advertising. I should have known better. Google didn't get where it is today by accepting the status quo.

The big question is: why? Why spend all that time and money developing a browser when there are several perfectly good browsers already? Well, OK, some are less than perfectly good, but at least a couple of browsers are widely acknowledged as being excellent. And with Microsoft's Internet Explorer still holding a massive market share lead, why would Google want to enter the fray?

Officially, at least, it appears Google doesn't think that existing browsers are up to the demands of next-generation web applications. The official Google blog (at <http://tinyurl.com/608g53>) puts it more charitably: "What we really needed was not just a browser, but also a modern platform for web pages and applications, and that's what we set out to build."

One look at Chrome and you know this is not just another Internet Explorer or Firefox clone. For a start, there's no menu or toolbar — just the address bar, tabs, the usual browsing controls and a couple of icons that allow you to dig down and configure the browser. It's as clean and unadorned as www.google.com, but has some handy features such as 'application windows' that allow you to run apps such as Gmail separately with an even cleaner interface.

But it's what's under the hood that matters, and here Google has added two important features: a new Javascript engine and 'sandbox' tabs. The latter means that each browser tab runs as a separate process in the operating system, so if one badly coded site causes a crash, it affects only that tab and not the browser itself.

The screenshot shows the Google Chrome Help Center with the URL <http://www.google.com/support/chrome/bin/answer.py?answer=654453&hl=en>. The main content is titled 'Explore Google Chrome Features: Address bar'. It explains how the address bar allows users to search directly on the web without leaving the browser. Below this is a screenshot of the Google Chrome browser window. In the address bar, the user has typed 'maps'. A dropdown menu shows suggestions: 'Maps', 'Maps - Wikipedia', 'Maps - Google', 'Search Google for maps', 'Search Google for map', and 'Search Google for map'. Below the suggestions, it says 'See 4 recent pages in history containing maps'. At the bottom of the address bar, there's a note: 'Type your search query in the address bar, and it automatically suggests related queries and popular websites, based on your input. Google Suggest is the default service that provides auto-suggestions unless your default search engine uses an alternate service.'

My verdict on Chrome? I like it. It's quirky, but I like its speed and sparseness. However, I'll be staying with Firefox for now. I just can't live without its extensions.

Hits & misses



I don't always agree with Apple's business policies and tactics, but credit where it's due: the folks at Apple Australia really came through for us this month. With the new iPod range being released just two days before we went to press, Apple's local PR people made sure we had the new iPod Touch and Nano in time for Darren Yates to run them through his battery of tests. The results? Two thoroughly deserved Best Buys — see our portable media players feature on page 54.



Have Apple's competitors in the portable media player market given up? Mimicking an iPod design, compromising on quality and trying to compete on price is hardly a recipe for success. Thankfully, there were a handful of notable exceptions: some good non-Apple players.

The new 'V8' Javascript engine allows developers to build more powerful web applications, according to Google, and to further enhance its credibility among

developers, Google has made Chrome open source. Which begs the question: is this the start of a new browser war? No, I'd call it more of a battle. It's just part of Google's war to build its empire.

Google already dominates its domain (the web), but by pushing the web's current boundaries it can own even more. The most obvious target is Microsoft. If Chrome allows Google to significantly improve GoogleDocs and its other online applications, then it could seriously threaten desktop applications such as Microsoft's cash cow, Office.

Perhaps it's true that the browser is becoming more important than the operating system, and this could be why Google is working on Mac and Linux versions of Chrome, as well as the current Windows version. However, it may not matter too much if Chrome doesn't win the battle of the browser. Even if Google only forces the other browsers to rapidly improve as a platform for web applications, then Google can continue on its march towards web and software dominance. ☺

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NEXT
MONTH

ASUS M3A79-T DELUXE

All-in-one Solution for Extreme Overclocking Potentials

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Looking for a motherboard that can do it all? Then look no further than the ASUS M3A79-T DELUXE. Equipped with the latest AMD 790FX/SB750 chipset and an innovative new power design that supports 140W powered CPUs, this top-notch motherboard features Hyper Transport™ 3.0, quad PCIe 2.0 x16 slots; and support for ATI Quad CrossFire™ and AMD OverDrive™. Additionally, the ASUS Precision Tweaker 2 offers ultimate overclocking potentials; while the ASUS Express Gate delivers excellent entertainment options.

Meticulous Fine Tuning for Optimal Overclocking

The M3A79-T DELUXE features Precision Tweaker 2 – a voltage fine-tuning tool that provides 0.02v adjustment per step for the

NB, SB and DRAM voltages. This facilitates optimal overclocking performance while preventing system shut down due to high voltage inputs. It also supports the AMD OverDrive™ (AOD) technology – which lets you configure overclocking settings in Windows to enable greater performance tuning margins for CPUs. By integrating both technologies, the M3A79-T DELUXE provides you with a complete set of overclocking capabilities for the CPU, chipsets and DRAM – making it one of the best platforms for overclocking performance.

5000hrs VRM Design for Long Component Lifespans

Great system performance is not just based on special features – it also requires the best quality components. The M3A79-T DELUXE

utilises the highest quality power components like: low RDS (on) MOSFETs for min. switching loss and lower temperatures, Ferrite core chokes with lower hysteresis loss, and most importantly, 100% high quality Japan-made conductive polymer solid capacitors (5000hrs VRM, Voltage Regulator Module). With such high quality components, you can attain higher power efficiency, better stability and lower temperatures for the best overclocking results while enjoying longer component lifespans.

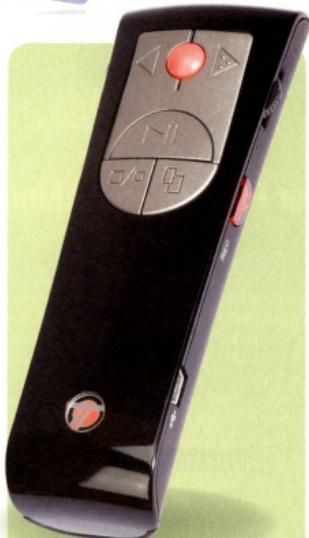
Instant Fun in 5 Seconds* Bootup Time with Express Gate!

The M3A79-T DELUXE also provides you with a completely new and exciting one-stop gateway to instant fun! With the ASUS Express Gate, it only takes 5 seconds* to go online from bootup without entering Windows. You can enjoy online videos, chat through popular Instant Messengers (IM) like MSN, Skype, Google Talk, QQ, and Yahoo! Messenger, check on the weather or send/receive e-mails just before leaving your home. The user-friendly Picture Manager offers slideshows and different modes to view and edit photos and albums according to your individual preferences.



Onboard switch lets you fine-tune OC performance with just a push of a button!

*The actual boot time is subject to hardware configurations and product models.



letter of the month prize

This month's letter of the month prize winner will receive a Targus Voice Recording Presenter with Laser Pointer, valued at \$99.95. It controls your PowerPoint presentations up to 15m away: simply plug an SD memory card (not included) into the integrated reader and voice record your presentations, notes, meetings and reminders.

WHAT ABOUT TECHNICIANS?

Sender: Michael Hill / Sale, Vic

I've just finished reading through your October issue, when it suddenly hit me that something was amiss. I promptly looked over the magazine again to find what was missing. It was the IT Careers feature — to my dismay Angus Kidman missed one vital role in the IT sector — the humble computer technician. You remember him? The guy in the computer shop who works out the back solving people's computer problems. I feel this is still one of the most important and massively overlooked roles in the entire IT industry.

If someone at the helpdesk can't solve your problem, they then suggest you take your PC to a technician. I'm a budding tech myself, but I'm unable to get myself a job as

Broadband rip-off

Sender: Noel McCarthy / Mount Colah, NSW

Imagine you had to enter into a contract to buy petrol on a monthly basis and you had to pay for that amount even if you didn't use it all. And, if you used more, you'd be charged 75 times the normal rate (approx. \$113 per litre). Suppose you had to have a monthly contract to buy electricity and had to pay the full amount even though you didn't use it all. And, if you used more, you'd be charged 75 times the normal rate (approx. \$9 per kWh instead of 12c).

Strange as it may seem, that's exactly what the internet providers (Telstra, Optus etc.) do. Charging such a high penalty for using more than the contracted amount is the way internet providers ensure you pay for more than you use. But if you use less than the contracted amount, the surplus doesn't carry over — it's forfeited in the favour of the provider. To upgrade your internet plan from 2GB to 7GB per month,

for example, might cost around \$10. This works out to approximately 0.2c per MB compared with the usual charge of 15c per MB for excess usage. Internet users must be very placid — or dumb — to allow this to persist.

It's time for the internet to be charged like prepaid mobile phones. Once you're recharged, you shouldn't have to pay more until you've used up what you've paid for.

The writer of the best letter to PC User each month wins a prize. Just send your letter of no more than 300 words to PC User (see 'Contact us', page 10), and include a postal address and daytime phone number. Entry is open to all residents of Australia other than employees of ACP Magazines. Entries for December close on October 1. The judges' decision is final. All entries become the property of ACP Magazines.

COMING FULL CIRCLE

Sender: Roger Gilbert / Internet

Back in the early PC days when we ran a 386 and thought how great it was to have 4MB RAM and a 40MB hard drive, before loading a new program we'd want to know how much disc space it required.

Then, as processor speed increased and 1GB RAM became the norm and hard disks grew to mammoth sizes, nobody cared how greedy for space a new program was.

a tech. I attained a Certificate IV in IT but I have since found out that this Diploma in IT is not a work-based accreditation, being that it is wholly programming based.

Someone has pointed out to me that to get myself a job as a tech I now need to possess at the bare minimum an A+ Certificate and at least two years experience. This would be fine except for the fact that the A+ course alone costs at least \$1,500 then the two required tests are roughly \$600 a piece for a total of \$2,700 (not a sum of money I can easily procure).

I love working with computers — I've built systems for myself and for friends and family members. But for now I guess I'll have to plug along with my current line of employment and try to work my way to getting the funding necessary to complete the A+ Certificate and pass the tests to get myself my dream job as a tech.

I now have an ASUS Eee mini notebook — it's excellent for my travelling requirements — somewhere to download my digital camera photos, a cheap and easy way of keeping in touch with home via Skype and Wi-Fi — and I can even play a quick game of FreeCell during a quiet time.

But now when I want to load an extra program (I'm running XP Pro) I remember my 4GB SDD and ask how much disc space the DVD copy program or virus scan suite requires. With today's software, it seems as though Murphy's law has been rewritten from: "What can go wrong will go wrong," to: "The disc space taken up by a program expands to fill the disc space available."

Perhaps if the software writers were to indicate what the program sizes are, life would be so much easier.

EXTREME OS A WINNER

Sender: Peter Grant / Internet

I'm writing to say how impressed I am with the Extreme OS from your August DVD. I installed it on a second hard drive and used GRUB to dual boot. Everything works, including wireless! It must be stressed to users that it is necessary to download the 'non-free' Nvidia drivers. My 19in LG widescreen didn't align correctly until they were installed. I've been using various flavours of Linux for more than 10 years and this has been the most seamless install and 'together' Linux compilation ever. Well done PC User and Ubuntu! More articles on using

LETTER
OF THE
MONTH



DOWNLOAD DANGERS

Senders: **Sabiene Heindl**, General Manager, Music Industry Piracy Investigations & **Ron Curry**, CEO, Interactive Entertainment Association of Australia

We refer to your article 'Download Like a Pro' (in *PC User* September, page 44) that in our view both actively encourages *PC User* readers to engage in illegal peer-to-peer (P2P) file sharing of copyright protected materials without providing a thorough understanding of the legal, security and ethical issues associated with these activities.

As a publication that prides itself on being a source of technical information for home, school and small business computer users you are therefore no doubt aware that the vast majority of content on the peer-to-peer networks discussed in the article is illegal. MIPI and the IEAA are therefore

extremely disappointed that *PC User* thinks it appropriate to publish such an article.

Overall, we think it is extremely irresponsible of *PC User* to be encouraging readers to engage in P2P activity, the majority of which is illegal and may expose them to criminal penalties of up to \$60,500 and imprisonment of up to five years per infringement for copyright infringement and civil injunctions and damages. In this regard, we also note that the criminal fines cited in the article are incorrect.

This article simply fails to mention the devastating consequences that illegal file sharing activity is having on copyright industries and its effects more broadly.

For example, illegal file sharing of close to 1 billion files by Australians every year significantly undermines the ability of Australian singers and songwriters to make a living from their music. In Australia, we also have a growing number of video game development companies who are significantly impacted by a culture of intellectual property theft which is fuelled by articles such as this.

PC User relies on the creativity of those producing materials for readers' enjoyment including music, interactive entertainment and software. Piracy is damaging to the companies that drive this innovation and to the individuals who create it.

this version would be great. I'm still finding my way around Gnome after being a KDE user for a long time. The magazine article that supported the DVD was excellent. For instance, I discovered that to open .rar files I had to use Synaptic to download an UnRAR application. Keep up the good work!

BACK TO BASICS PLEASE

Sender: **Terry Mower** / Tamworth, NSW

I consider myself a fairly typical home computer user — I have a name brand desktop and laptop with all the customary peripherals — printer, scanner, backup drive, etc. Once upon a time, *PC User* was aimed at readers like me, with some space allocated to the technical movers and shakers with deep pockets. Lately, however, I find myself skipping page after page of geek speak, gadgets galore and reams of reviews whose summary tables are sufficient in themselves

— in fact, I need Help Station Q&A to explain some of the questions, let alone the answers.

Please consider moving some of the more technical details to the DVD. Give us back some basic tutorials on affordable software (if I could afford Photoshop CS3, I could probably also manage a training manual), and a broader interest base. Some suggestions might include budgeting, tax returns online, reviews of online shopping sites, workflow in photo editing and photo projects. Perhaps it would be a good time for a reader survey on present and future magazine content.

MORE INFO ON INKS

Sender: **Glen Heslop** / Perth, WA

I recently purchased an HP 02 Photo Pack containing six inkjet 02-size print cartridges and 150 sheets of photo paper for an HP Photosmart printer. I was assured by the

retailer that the print cartridges inside were the standard sizes.

When I opened the pack I found that the black cartridge weighed just 24g instead of the usual 34g, ie 30% of the usual amount of ink. The coloured cartridges in this set appear to contain fractionally more ink but the quantities supplied certainly didn't match my regular usage pattern. I phoned HP to ask for a replacement cartridge for the one-third-full black cartridge, and was referred to four departments in succession without finding anybody who knew anything about HP cartridges and certainly no-one prepared to help other than giving me another phone number to ring.

When we buy virtually any other commodity, the package tells us how much we're buying. Why not the same for printer inks? A few manufacturers put the ink content on their cartridges or at least the packaging. Surely all of them should! ☺

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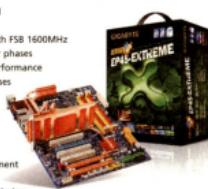


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TEST BENCH



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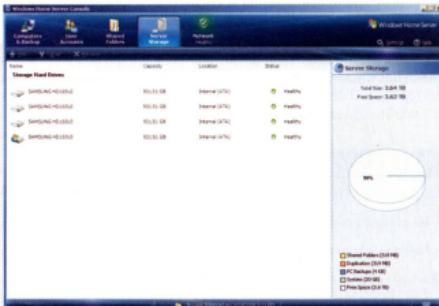
In a modern multi-PC household, the sheer amount of digital video, music, image and document files that can be accumulated is pretty staggering, and Windows Home Server is Microsoft's attempt to address the growing need of home users for centralised storage and backup. Unfortunately, the initial release suffered from a serious bug that could cause your data to disappear if the server was under heavy load. (You can read about it at <http://tinyurl.com/2tep8f>.) There is a bug fix however, not surprisingly, the OS still hasn't been a huge seller. This month, we got our first look at a retail system thanks to Altech Computers Smartserver (see page 18).

Windows Home Server is built on Windows Server 2003 — something that's made clear by the fact that when Home Server boots up it shows you the Server 2003 splash screen. The first thing that appears when you log into Home Server is an HTML warning page, sternly informing you not to go mucking around using the Server 2003 administrator tools. Unlike in Server 2003, the idea is that you control everything you need to using the new Home Server Console.

Home Server has a number of features designed to make it easier to keep track of your important files and data all controlled from the Home Server Console, which can be activated using Remote Desktop Protocol (RDP) on a client PC. It has a centralised

remote PC backup feature that allows the server to back up client PCs at set times of your choosing. The backup requires storage, but unlike a standard Windows desktop, Home Server incorporates a feature known as Home Server Drive Extender that aims to simplify the management of storage. You don't have to think about logical volumes — you simply add in extra drives (internal or external) and Home Server takes care of setting them up and integrating them into the storage pool. It means you no longer have to worry about logical drives and so forth, as you just have a single storage pool to play with. The operating system also has its own form of RAID that's automatically set up to ensure that copies of folders are never stored on the same drive. Adding larger capacity drives is made easy via a wizard control.

Windows Home Server's interface is very 'Windows Me/2000' — Microsoft could have tarted up the front-end with a friendlier XP-style look. As with other Windows OSes, Home Server has its own mechanism for downloading critical updates. However, to ensure you get the data corruption bug fix,



The Home Server Console gives you a simple view of its storage availability.

Home Server allows you to set up accounts and passwords for improved security.



you should download and install Home Server Power Pack 1 manually. This can be found at <http://tinyurl.com/65azus>.

If you're looking to use a Home Server machine as a media streamer, it supports Windows Media Connect-compatible devices (like the Xbox 360), though format support is limited, and you'll need to load in your own Xvid/DivX codecs to play back these files.

To sum up, Home Server has some clever storage features but the data corruption bug and old-style interface should have been fixed or improved before its launch.

— Darren Yates

PC User says: Clever storage handling but make sure you install Power Pack 1 to fix the data corruption bug.

ALTECH COMPUTERS SMARTSERVER

PRICE \$1,899 / CONTACT ALTECH COMPUTERS / PHONE (02) 8831 9999 / WEB www.altech.com.au

The first example we've seen of a commercial home server based on Microsoft's Windows operating system of the same name, this Altech system is essentially just a Core 2 Duo E8200 desktop PC with an awful lot of storage on board. For your \$1,899 price tag, you get a Gigabyte G43-chipset motherboard with 2GB of memory and the aforementioned E8200 processor. Being designed as a server, it runs off the G43 chipset's integrated graphics, which leaves you more cash for storage. Here, Altech has thrown in four 1,000GB Samsung HD103UJ hard drives for a total storage pool of 4,000GB. You can read in our Windows

Home Server review how the operating system does away with the normal 'drive letter' idea of storage and has just a single storage pool that you can easily expand as you wish. If you need more than 4,000GB of storage, Windows Home Server can also incorporate external storage as part of its pool, and there's a simple wizard for replacing drives with larger-capacity models. With its Core 2 Duo E8200 processor it's not terribly quick but should have enough performance to handle streaming video to various devices and across the network. There's nothing really mystical about this system — as we've said, it's basically just a desktop PC with a server-based operating system to take care of all the hard stuff. Worth noting however is the fact that we couldn't find Power Pack 1 installed on this system with the fix for the data corruption bug — you may need to install that one yourself.

— Darren Yates

PC User says: More a desktop PC with a home server OS than a server in the traditional sense.



75%

TEST RESULTS*

UserBench Encode 2008	36.22
- Audio time/rate (minutes:seconds/MB/s)	1:46/6.13
- Video time/rate (minutes:seconds/fps)	1:19/94.26

UserBench Image 2008 (minutes:seconds) 2:34

* For UserBench tests with time-based scores, lower is better; for UserBench test with MB/s and fps scores, higher is better.

ASUS EEE PC 1000H

PRICE \$700 / CONTACT ASUS / PHONE 1300 278 788 / WEB www.asus.com.au

The 10in 'netbook' computer has a lot of appeal in geek circles because, in theory, it seems to be the perfect compromise between having a decent-sized screen and actually being usable. Much like the MSI Wind we reviewed two issues back, this latest Eee PC from ASUS is a 10in-screen netbook with an 80GB hard drive, 1GB RAM, an Atom N270 CPU and running Windows XP Home. There's also the requisite SD/MMC card reader and three USB ports, plus VGA out, Gigabit Ethernet and built-in Wi-Fi (here using an Atheros 802.11b/g/n chip). In terms of usability, there's a nice big touchpad and a keyboard that's big enough to be usable, even

for large-fingered folk. The matt-finished screen is bright and clear; it's about on par with that used by the Wind. As with all the other netbooks we've tested, benchmark performance isn't great, though the Atom N270 has enough grunt to do the basics. Battery life with power-management set to high-performance was a reasonable 3 hours 33 minutes with the unit's six-cell (6,600mAh) battery. All up, it's pretty pleasant and responsive to use. If the 1000H has shortcomings, they're the unit's weight and size. Including power adapter, it weighs in at 1.67kg (just the machine itself is 1.43kg), making it considerably heavier than any of its Eee siblings. It's also physically larger and thicker than the 901. All these characteristics almost edge it into 13in-notebook territory — though it'll still slip into a smallish shoulder bag. It's also worth noting that there are currently two versions of the 1000H being sold — the slightly more-expensive Atom N270-based model we tested, and one that uses a 900MHz Celeron (the same chip as in the original Eee 701). The Atom version seems to be significantly harder to find — most likely due to a reported



80%

TEST RESULTS*

UserBench Encode 2008 (score)	7.52
- Audio time/rate (minutes:seconds/MB/s)	7:46/1.39
- Video time/rate (minutes:seconds/fps)	7:07/17.5

UserBench Image 2008 (minutes:seconds)	8:01
UserBench Security VR 2007 (minutes:seconds)	8:27

UserBench Battery 2008 (hours:minutes)	3:33
--	------

* For UserBench tests with time-based scores, lower is better; for UserBench test with MB/s and fps scores, higher is better.

shortage of these newer CPUs — but it'd definitely be our choice of the two, as it should give slightly better battery life.

— Dan Gardiner

PC User says: Packs a decent screen, usable keyboard and heaps of storage, but at 1.67kg it's not really as portable as others.



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PRICE \$1,499 / **CONTACT** LENOVO / **PHONE** 1300 557 073

WEB www.lenovo.com.au

The IdeaPad Y430 from Lenovo is a compact 14.1in chassis notebook featuring one of Intel's new mid-range Centrino 2 processors. The Core 2 Duo P7350 clocks in at a decent 2GHz and it does very well for its \$1,499 price tag. With 2GB of memory and a roomy 250GB Western Digital hard drive, the Y430 should have no trouble keeping its Windows Vista Home Premium operating system running cleanly. Nvidia's GeForce 9300M GS graphics

drive the 1,280 x 800-pixel widescreen LCD. The 9300GS has enough power to push *Half Life 2: Lost Coast* to a tick under 50fps at 640 x 480 pixels, so gaming is definitely not out of the question.

Helping to keep the unit slim is the slot-loading Optiarc AD7640S DVD burner. If it's movies you plan to load into that drive, you've also got VGA or HDMI output to play with. With built-in Bluetooth, Wi-Fi and multi-format flash card reader, the Y430 has a number of worthwhile extras as well. Overall performance was generally good with steady results on UserBench Encode, although the Security score was surprisingly low. Battery life came in at a very reasonable 2 hours 43 minutes, however that's due to a larger-than-normal 5,200mAh LiIon battery from Sanyo. Weighing in at a touch under



85%

2.4kg it's just portable. There's plenty to like about this Y430, especially with a sub-\$1,500 price tag.

— Darren Yates

PC User says: Ticks all the right boxes — with good features, performance and value.

TEST RESULTS*

UserBench Encode 2008 (score)	26.71
- Audio encoding time/rate (minutes:seconds/MB/s)	2:23/4.53
- Video encoding time/rate (minutes:seconds/fps)	1:48/69.39
UserBench Image 2006 (minutes:seconds)	3:45
UserBench HL2LC 2008 (640 x 480) average fps	49.6
UserBench Battery 2008 (hours:minutes)	2:43

* For UserBench tests with time-based scores, lower is better; for UserBench test with MB/s and fps scores, higher is better.

ASUS M70

PRICE \$3,600 / **CONTACT** ASUS / **PHONE** 1300 278 788

WEB www.asus.com.au

The ASUS M70 has quite a big claim to fame as the world's first 1TB notebook with 1,920 x 1,200-pixel screen, Dolby Home Theatre sound and Blu-ray drive. But while its specs (which also include 4GB RAM, a 2.53GHz T9400 Core 2 Duo and Windows Vista Ultimate) are relatively appealing on paper, we found the hands-on experience a little less impressive. The unit's 1TB of storage boils down to a usable 921GB, or 10GB less than 1TB desktop drives. This is mainly thanks to the use of two 500GB drives (which are annoyingly formatted as four partitions) and some space taken up by the recovery partition. In use the screen was bright and

the high-resolution gave sharp images and video, though unfortunately there was colour banding when viewing subtle colour gradations in our test videos. Angling the screen helps a little but the problem was always evident and it makes this one less appealing for colour-accurate multimedia and video work. The audio produced by the speakers, which are hidden throughout the chassis, was quite balanced in terms of frequency which was pleasing to hear. The low frequency driver (we can't bring ourselves to actually call it a subwoofer) lets it down somewhat though; while it sounds fine, its positioning gives a strong bias to the left side of the notebook. Performance was on par with notebooks of similar specs, with higher-resolution gaming coming out marginally in front thanks to its ATI graphics card. The M70 tries to do everything and in doing so fails to do anything with great success. If you're in

the market for a big-storage notebook, we'd be more inclined to check out the Acer Aspire 8920G (reviewed in *PC User* July, page 15).

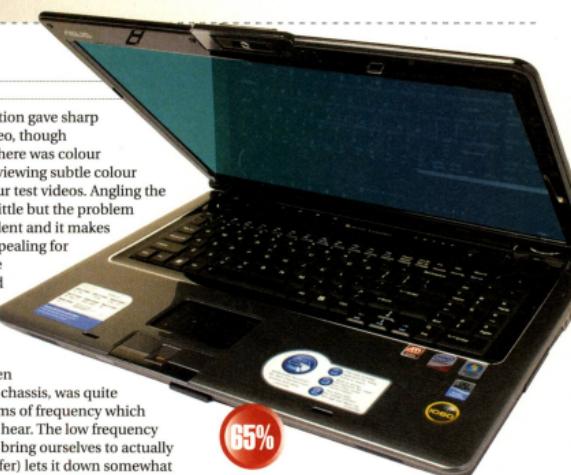
— Nick Mailath

PC User says: Overpriced for what you get and fails to match some of the competition.

TEST RESULTS*

UserBench Encode 2008 (score)	31.51
- Audio time/rate (minutes:seconds/MB/s)	2:05/5.17
- Video time/rate (minutes:seconds/fps)	1:27/85.48
UserBench Image 2006 (minutes:seconds)	3:00
UserBench HL2LC 2008 4x4A/AS (640 x 480) avg. fps	79.3
UserBench Battery 2008 (hours:minutes)	1:55

* For UserBench tests with time-based scores, lower is better; for UserBench test with MB/s and fps scores, higher is better.



65%

QNAP NVR-1012

PRICE \$960 / CONTACT BLUECHIP INFOTECH / PHONE 1300 72 74 74 / WEB www.qnapsecurity.com

This all-in-one surveillance package from QNAP is designed to let you setup a video-monitoring system without the need for a complex PC installation. The kit includes two IP cameras, a network-attached storage (NAS) box and all the associated cables you need to connect it all together. The cameras can transmit video over wired Ethernet or wireless 802.11g connections, and footage is recorded directly to the NAS box. And though they're reasonably small, they aren't exactly stealthy; a large flashing status light on the front practically announces their location. The cameras also have a small power pack each, which must be plugged in for both wired and wireless use. As with all of QNAP's NAS products, this one doesn't come with a hard drive so you'll need to purchase one separately. Installing one takes only a few minutes and is very simple. The box itself has a bunch of status LEDs on the front and a USB port for on-the-go copying of files. A software CD is included for both the cameras and NAS unit and both are configured



individually on a PC before being used together. The whole setup process takes around 10 minutes, after which your system should be ready to record. Access to the NAS unit is via a web interface, which is well built and easy to use. You can view the live feed and watch recorded video from here with very little lag. You can even view it remotely over the internet when configured properly. Video



quality was decent once we bumped the resolution up to VGA and the frame rate to 20fps. You can also vary the length of video recorded after the motion-detector kicks in. If you're after a simple surveillance system that won't infringe on your PC this is worth a look.

— Nick Mailath

PC User says: A little pricey, but works very well as a self-contained surveillance system.

IOMEGA MEDIA XPORTER 160GB

PRICE \$110 / WEB www.iomega.com

Most portable USB hard drives are pretty plain when it comes to extras, but the Media Xporter tries a different tack by bundling in a copy of Prism Video Converter MX (sold for US\$40 separately) — a media conversion app that'll take just about any video file you've got and reconvert it into a PS3- or Xbox 360-compatible MPEG-4 file. (Prism's software is based on the FFmpeg encoder we use in *PC User*'s own video-conversion programs, including this month's RockPod 2009.) The app is pretty simple to use; you open up the file you want to convert, pick your intended playback device from a drop-down list

(which includes presets for iPod, PSP, Xbox 360 and PS3) and hit the Convert button. The default settings gave us pretty quick conversion times on our 2.66GHz Core 2 Duo E6700, but the final files did lose some image quality. The chassis is relatively nondescript and contains a 5,400RPM Western Digital drive. Its performance was on par with most other USB 2.0 drives around — it averaged 31.9/30.1MB/s in raw read and write speeds. Given that the PS3 and Xbox 360 can now both play DivX and Xvid files, many people won't need the Xporter's conversion software. However if you do have



quirky video formats that you can't play on your console, this one might be worth a look.

— Dan Gardiner

PC User says: Decent performance and the unique video conversion software works OK.

WESTERN DIGITAL MY PASSPORT ELITE 320GB

PRICE \$205 / WEB www.wdc.com

Hard-drive giant Western Digital's small Passport portable drives come in two main flavours, this one and cheaper counterpart The Essential. Physically they're similar, though the Elite has a sliding cover to protect the USB port and a bank of status lights (rather than just one). The only real other point of difference between the two (apart from colour choices) is the bundled software. The Elites sell at a premium because they include more sophisticated applications. The most useful of these is MiOnet, a service that lets you access files on your home or work PC remotely, or even control that PC, all

through a web browser. MiOnet requires a program to be installed on the host PC, and it's Java-based so it can get through most corporate firewalls — we had success in our testing. Remote control through a browser works reasonably well, though the interface can be a little laggy. The other extra app is Anywhere Backup, which makes it relatively simple to create automated backups that run in the background and even cache multiple versions of each file. Performance was OK, but it didn't offer anything over that of its cheaper siblings, with good read and write speeds of 32.8/30.1MB/s in our testing.



— Dan Gardiner

PC User says: Worth considering if you can use the extra utilities, otherwise stick with a plain-Jane model.



APPLE iTUNES MOVIE STORE

PRICE FROM \$3.95 / CONTACT APPLE / PHONE 13 36 22 / WEB www.apple.com/au

There's a bunch of big positives that Apple's recently-launched iTunes Movie Store brings to market. The selection is impressive, with a claimed 700 movies at launch time, along with 100 titles available in HD for only a dollar premium on the renting price. As with most things iTunes related, picking titles is simple, especially if you do your browsing through Apple's 'Apple TV' device, which finally has a reason for existing — just. Video quality, even for standard definition rentals, is pretty good. Downloads are good for 30 days or 48 hours after first viewing, whichever

comes sooner. So what's the worm in this Apple? Well, leaving aside some really strange things (like the fact that some titles can only be rented and others can only be bought) the thing we suspect will kill the Movie Store is the data sizes. Movies weigh in at around 1GB and at the time of writing only iNet was waiving iTunes data charges. You could easily double the rental price, at which point the local DVD rental store starts to look tempting.

— Alex Kidman

PC User says: Good delivery mechanism, but could be killed stone dead by data charges.



COREL DVD MOVIEFACTORY PRO 7

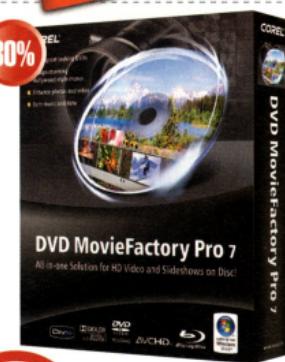
PRICE \$129.95; STANDARD EDITION \$79.95 / CONTACT LAKO PACIFIC
PHONE 1800 657 601 / WEB www.corel.com.au

DVD MovieFactory is one of our favourite consumer DVD authoring tools, mainly for its ease of use rather than features. It can capture footage from a camera (supporting DV, and now HDV and AVCHD), it does rudimentary editing and, most importantly, it provides great menu templates for creating a DVD. It also supports audio disc standards and data backup, and can capture and burn in a single pass. You can burn 30 minutes of HD footage onto a standard DVD-R that will play in any Blu-ray player. Other new features include enhancements to menu creation — reflections, rotating objects and masked text — plus full support for the advanced features

in Blu-ray disc menus. It's now Windows Vista Certified and the Launcher interface has the distinctive Aero look. Corel has updated the MPEG encoder (apparently it's faster) and it now supports quad-core CPUs. Bundled in the Pro edition is WinDVD 8 Silver and DVD Copy 6, BurnNow and more. We still wish they'd pay more attention to the audio side by adding support for 5.1 audio and multiple soundtracks. But overall, the program is easy to use and is all most users will need to create impressive DVDs of their home movies.

— Philip Moore

PC User says: Good HD and Blu-ray support, but is behind the pack on the audio front.



PINNACLE STUDIO ULTIMATE 12

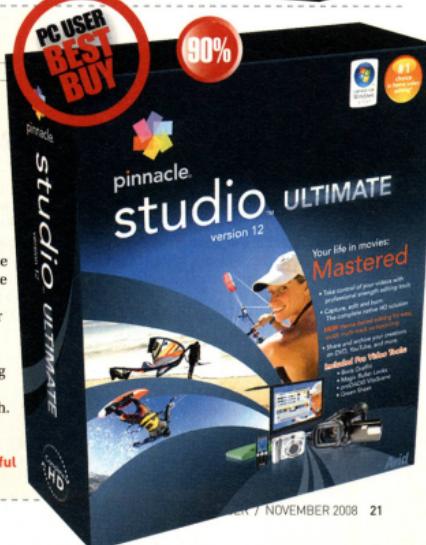
PRICE \$249.95; STANDARD EDITION \$129.95 / CONTACT LAKO PACIFIC
PHONE 1800 657 601 / WEB www.pinnaclessys.com

As one of the leading consumer video editing programs around, Pinnacle Studio has basic video editing well and truly sorted. It comes with a good collection of transitions and effects, plus a variety of wizards and shortcut features for adding a music soundtrack or creating a quick moving slideshow or music video. Picture-in-picture and chroma key effects are also possible, and a greenscreen cloth is provided with the Ultimate Edition. It also includes built-in DVD authoring so you can capture, edit and output directly to disc, with Blu-ray support now added. Among the big new features in the Ultimate edition is the inclusion of several high-end plug-ins. Magic Bullet Looks adds drag-and-drop colour-grading filters to alter the appearance of your film. Boris Graffiti provides a more powerful text and titling engine, while proDAD VitaScene adds advanced transition effects. This kind of power is unheard of in a \$250 consumer program, and even many high-end

tools don't include these features built-in. We'd suggest making sure you have an up-to-date graphics card with the latest drivers. New for all versions is Pinnacle Montage, a feature that lets you composite multiple clips or graphics together and treat them as a single unit; it's like the timeline embedding feature of some other video editors. YouTube and Flash export is included, and the sound features have been improved slightly. DVD authoring is still rather basic, despite some nice templates, and the audio features need more work, but for advanced video editing and visual effects in a consumer program this is the pick of the bunch.

— Philip Moore

PC User says: New plug-ins and Montage make this the most powerful consumer video editor around.



Speed freaks

A 4.28GHz overclocked beast was among the outstanding performers in this roundup of gaming PCs under \$2,500. **Darren Yates** reports.

The word is out about just how overclockable Intel's latest Core 2 Duo E8000-series processors are, because after making the call for the best gaming PCs under \$2,500, two of the seven systems we received came already overclocked. Leading the way was Altech Computers' NRG system, whose 3.16GHz Intel Core 2 Duo E8500 chip was cranked up to an impressive 4.28GHz. Not surprisingly, it produced the fastest video and audio encoding score that we've ever seen, hitting a new benchmark of 55.44

with our UserBench Encode test.

Unfortunately, this speed came at a price — fewer features than some other models for the \$2,500 price tag. At PC User, we've always been about judging the overall value of a product and for \$2,500 gaming PCs, that currently means 3,000GB of storage and a good 22in LCD monitor, as well as performance components.

In that respect, ATI's new Radeon HD 4870 X2 has taken over as graphics card of choice in most gaming systems at this price.

PACSTAR COMPUTERS LIGHTNING SPEED280

PRICE \$2,000 / **CONTACT** PACSTAR COMPUTERS / **PHONE** 02 9868 6962 / **WEB** www.pacstarcomputers.com.au

We've taken the unusual step of giving a Best Buy award to an overclocked PC and although we can't make guarantees, we have enough evidence to suggest that you'll get plenty of life out of the Speed280. First, unlike the Altech NRG system, Pacstar has gone for a moderate overclock to 3.8GHz rather than 4.28GHz. Second, we've seen first-hand just how overclockable these 45nm Core 2 Duo E8000-series processors are. Even with the stock Intel heatsink-fan unit, we've had our Core 2 Duo E8500 clocked to 4GHz on several motherboards, with no stability issues.

Finally, the Speed280 was rock-solid in our testing, delivering excellent all-round

benchmark results. Its UserBench Encode score broke the 50 mark, beating everything else except the Altech NRG. It was also among the quicker performers in our games tests, despite having an Nvidia GeForce GTX 280 graphics card instead of the dual-GPU Radeon HD 4870 X2 found in the other better performers.

However, overclocking aside, this system is remarkably good value, coming in \$500 cheaper than every other PC. Given its performance, 22in monitor and other features, it's impressive value all round.

PC User says: If you only have \$2,000 to spend, this one is a cracker.

TI COMPUTERS TI DELUXE 4870X2

PRICE \$2,499 / **CONTACT** TI COMPUTERS / **PHONE** 02 9437 5437 / **WEB** www.ticomputers.com.au

Ti Computers has put together an impressive system this month, delivering big on performance and features. It includes ATI's ultra-quick, dual-core Radeon HD 4870 X2 graphics card, plus Intel's new 3.33GHz Core 2 Duo E8600 processor and a whopping 3,000GB of storage.

It was the fastest of the non-overclocked

systems on UserBench Encode 2008 and it was a great gaming performer, delivering the second-fastest result on *Crysis* at 1,920 x 1,200-pixel resolution.

Ti Computers also includes a USB digital TV tuner and the warranty is about as good as it gets for this price, with two-years return-to-base (RTB) and five years labour. An LG 22in

widescreen LCD monitor was also included.

This one is a good PC, suitable for any application.

PC User says: A fast system for more than just gaming.

Tech terms

CPU (Central Processing Unit). The main chip or processor that determines overall system speed.

CrossFire. Graphics card vendor ATI's system for running two graphics cards together in the one

PC to deliver higher performance. A new alternative to this is cards such as the Radeon HD 4870 X2 that deliver two GPUs (and hence CrossFire speed) on a single card.

RAID (Redundant Array of Independent Disks). A way of connecting multiple hard drives to either give greater speed (RAID0), data security (RAID1) or a combination of the two (RAID5).

TOP TIP Buying an overclocked PC

Overclocking a computer's CPU is usually the fastest way to void your warranty. When you buy an overclocked PC, make sure to nail down the specifics of your warranty — check that the warranty covers CPU failure. I wouldn't use an overclocked system for critical business applications — there are no guarantees that overclocked PCs will be stable or last as long as standard systems.





EXCEL COMPUTERS EXCEL GM-487D

PRICE \$2,499 / **CONTACT** EXCEL COMPUTERS / **PHONE** 02 9649 6668 / **WEB** www.excelcomputers.com.au

This was the better of two systems submitted by Excel Computers this month and interestingly, the major difference between the two systems was the graphics card.

ATI looks to be on a winner with its dual-chip Radeon HD 4870 X2 card and it clearly delivered the better performances on our gaming tests, compared with the GeForce

GTX 280 in the GM-280 system.

It also featured ASUS's P5Q motherboard inside — one of few boards not featuring the Gigabyte brand that we've seen in the past 12 months. It delivered decent performance too, although, it must be said, it didn't threaten the top performers in any of our tests.

Still, with 3,000GB of hard drive

storage and 22in LG LCD monitor, the GM-487D has plenty to offer.

PC User says: Not the fastest performer, but a good solid system with plenty of features.

80 %

75 %

75 %

70 %

60 %

ALTECH COMPUTERS NRG

PRICE \$2,499 / **CONTACT** ALTECH COMPUTERS / **PHONE** 02 8831 9999 / **WEB** www.altech.com.au

What do you get when you overclock a 3.16GHz Core 2 Duo E8500 processor to 4.28GHz? The fastest PC we've ever tested. With its score of 55.44 on UserBench Encode 2008, it takes out top spot in our benchtest hall of fame. The NRG also easily topped the scores in our UserBench Image and Security tests this month.

It was a slightly different story with gaming, with the graphics card, not the CPU,

being the main bottleneck for high-resolution gaming. Nevertheless, with ATI's Radeon HD 4870 X2 card, the NRG was still an outstanding games performer, topping the all-important high-resolution *Crysis* test.

The downside is that the rest of the system isn't great value for its \$2,499 asking price. While a wireless networking adaptor is included, there's no monitor, no operating system and the 2,000GB of hard drive space

isn't as generous as some other systems — so effectively, you're paying someone to do the overclocking for you.

PC User says: Not great value in terms of features, but this is the fastest PC we've ever tested.

PC EXPRESS INVADER 570B2

PRICE \$2,499 / **CONTACT** PC EXPRESS / **PHONE** 02 9584 0567 / **WEB** www.pc-express.com.au

PC Express chose the same basic system specs as TI Computers including the same CPU, motherboard, memory type, graphics card and storage capacity. The main difference comes from the way the storage is arranged with PC Express choosing four 750GB hard drives instead of the three 1,000GB drives chosen by TI.

Surprisingly, PC Express didn't get its usual extra step of speed it normally finds over the competition, but instead, the 570B2's benchmark scores were quite average in this company. Don't get me wrong, this is a reasonable performer, but just not up to PC Express's usual standard or the top performers in this feature. What is up to

standard is the 3,000GB of storage and 22in widescreen LCD monitor.

PC User says: All the right components but just lacks a little speed in this competition.

EXCEL COMPUTER EXCEL GM-280

PRICE \$2,499 / **CONTACT** EXCEL COMPUTERS / **PHONE** 02 9649 6668 / **WEB** www.excelcomputers.com.au

From what we've seen in this feature, single GPU graphics cards no longer cut the mustard at this price. The Nvidia GeForce GTX 280 card in this system is a good GPU but it can't compete with the dual-GPU Radeon HD 4870 X2 cards found in most of the systems. The one exception was Pacstar's overclocked system, whose GTX 280 gave the 4870 X2 cards a good run for their money.

The GM-280's lack of zip was most obvious in our high-resolution *Crysis* test. It wasn't disgraced, but it was outclassed by most of the other systems here — and that was across the board in most of our tests.

Otherwise, the GM-280 offers good value, with LG's 22in LCD monitor, wireless networking and three more Samsung 1,000GB hard drives. Unfortunately, this

would most likely be the first system in need of a graphics card upgrade, which isn't what you want from a new gaming PC.

PC User says: Not a bad system, but the single-GPU card just doesn't cut it at this price.

PIONEER COMPUTERS DREAMVISION CROSSFIRE

PRICE \$2,499 / **CONTACT** PIONEER COMPUTERS / **PHONE** 1300 88 3218 / **WEB** www.pioneer.net.au

Pioneer went all out here to include some top-drawer components, including Intel's Q9450 quad-core processor and X48-chipset motherboard. Also included were dual ATI Radeon HD 4870 graphics cards, a rather strange decision in our view, given that a single Radeon HD 4870 X2 would have given almost the same performance for significantly less money.

Unfortunately, despite these components, the DreamVision's performance scores were mixed. While it topped an *Unreal Tournament 2008* test, it fell to last in the high-resolution *Crysis* benchmark and stayed at or near the bottom for most of the other tests.

But by far the biggest drawback here is the lack of storage. Featuring a single 640GB hard

drive, that's basically less than \$100 of your \$2,500 going towards storage.

PC User says: Some top-notch components, but with some ordinary test results and only 640GB of storage, it just doesn't make the grade.

TEST BENCH > Best-value PCs

HARDWARE / SOFTWARE / COMPONENTS



SUB-\$2,500 GAMING PCS: HOW THEY COMPARE

Model	Alltech Computers NRG	Excel Computers Excel GM-280	Excel Computers Excel GM-487D	Pacstar Computers Lightning Speed280	PC Express Invader 570B2	T1 Computers T1 Deluxe 4870X2	Pioneer Computers DreamVision CrossFire
SPECIFICATIONS							
Processor	3.16GHz Intel Core 2 Duo E8500 (overclocked to 4.28GHz)	3.33GHz Intel Core 2 Duo E8600	3.33GHz Intel Core 2 Duo E8600	3.16GHz Intel Core 2 Duo E8500 (overclocked to 3.8GHz)	3.33GHz Intel Core 2 Duo E8600	3.33GHz Intel Core 2 Duo E8600	2.5GHz Intel Core 2 Quad Q9450
Memory	4GB DDR2-1066	2GB DDR2-800	2GB DDR2-1066	2GB DDR2-800	2GB DDR2-800	2GB DDR2-800	4GB DDR2-800
Motherboard	Gigabyte GA-EP45-DS4P	Gigabyte GA-EP45-DS3	Asus P5Q	Gigabyte GA-EP45-DS3P	Gigabyte GA-EP45-DS3R	Gigabyte GA-X48-DS4P	Gigabyte GA-X48-DS4P
Motherboard chipset	Intel P45 Express	Intel P45 Express	Intel P45 Express	Intel P45 Express	Intel P45 Express	Intel P45 Express	Intel X48 Express
Graphics card	2GB HighTech ATI HD4870X2	1GB GTX280	2GB Radeon 4870X2-HTDI-2G	Leadtek WinFast GTX280	2GB ATI Radeon HD 4870 X2	2GB ATI 4870X2	2 x ATI Radeon HD 4870
Graphics chip	ATI Radeon HD 4870 X2	Nvidia GeForce GTX 280	ATI Radeon HD 4870 X2	Nvidia GeForce GTX 280	ATI Radeon HD 4870 X2	ATI Radeon HD 4870 X2	ATI Radeon HD 4870
Hard disk drive	2 x 1000GB Samsung HD013UJ SATA2	3 x 1000GB Samsung HD103UJ SATA2 (3000GB)	3 x 1000GB Samsung HD103UJ SATA2 (3000GB)	1000GB Samsung HD103UJ SATA2, 2 x 500GB Samsung HD501LJ SATA (2000GB)	4 x 750GB Samsung HD753LJ SATA2 (RAID0 - 3000GB)	3 x 1000GB Samsung HD103UJ SATA2 (3000GB)	640GB Western Digital WD6400KS SATA2
Optical drive(s)	Samsung SH-S223F DVD burner	LG GSA-H62N DVD burner	LG GSA-H62N DVD burner	Pioneer DVR-215 DVD burner	LG GH22NP20 DVD Burner	LG GH20NS15 DVD burner	HP DVD Writer 1060d DVD burner
Operating system	None	Microsoft Windows Vista Home Premium SP1	Microsoft Windows Vista Home Premium SP1	Microsoft Windows Vista Home Premium SP1	Microsoft Windows Vista Home Premium SP1	Microsoft Windows Vista Home Premium SP1	Microsoft Windows Vista Home Premium (64-bit)
Monitor size and type	None	22-inch LG W2252TQ-PF widescreen LCD	22-inch LG W2252TQ-PF widescreen LCD	22-inch LG W2252TQ-PF widescreen LCD	22-inch Chimei CMV228A widescreen LCD	22-inch LG W2252TQ-PF widescreen LCD	22-inch AOC widescreen LCD
USB/IEEE1394 ports	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Wireless LAN	Asus WL-130N (802.11n)	D-Link DWA-547 (802.11n)	None	None	None	None	None
Digital TV Tuner	None	None	None	None	None	USB Digital TV with remote	None
Warranty	One-year return-to-base (RTB)	One-year return-to-base (RTB)	One-year return-to-base (RTB)	One-year return-to-base (RTB)	One-year return-to-base (RTB)	Two-year parts, five-year labour limited RTB	One-year return-to-base (RTB)
TEST RESULTS*							
UserBench Encode 2008 (Score)	55.44	45.52	46.76	51.76	46.07	49.33	41.59
- Audio component score	40.87	33.5	34.57	38.39	33.89	35.78	26.62
- Audio time/rate (minutes:seconds/Mbps)	1:09/9.31	1:25/7.63	1:22/7.87	1:14/8.74	1:24/7.72	1:19/8.15	1:47/6.06
- Video component score	75.28	61.96	63.25	69.71	62.75	68.51	71.14
- Video time/rate (minutes:seconds/fps)	0:51/145.89	1:02/120.08	1:01/122.58	0:55/135.1	1:01/121.61	0:56/132.78	0:54/137.88
UserBench Image 2006 (minutes:seconds)	1:45	2:14	2:17	1:57	2:07	2:02	2:22
UserBench Security VR 2007 (minutes:seconds)	2:13	2:39	2:34	2:23	2:31	2:26	DNB
UserBench Crysis 2008 (1,440 x 900/1,920 x 1,200)	56.39/49.76	49.08/36.88	48.70/43.34	54.52/42.27	45.83/43.69	49.40/47.13	41.01/31.53
UserBench HL2C 2008 (1,440 x 900/1,920 x 1,200)	197.4/170.1	145.9/129.7	161.7/155.9	147.6/155.6	152.4/164.3	162.4/165.3	153.7/137.5
UserBench UT3Demo 2008 (1,440 x 900/1,920 x 1,200)	150.37/145.90	138.97/FAIL	133.06/127.61	171.89/166.55	117.39/116.56	133.35/132.22	177.02/134.37

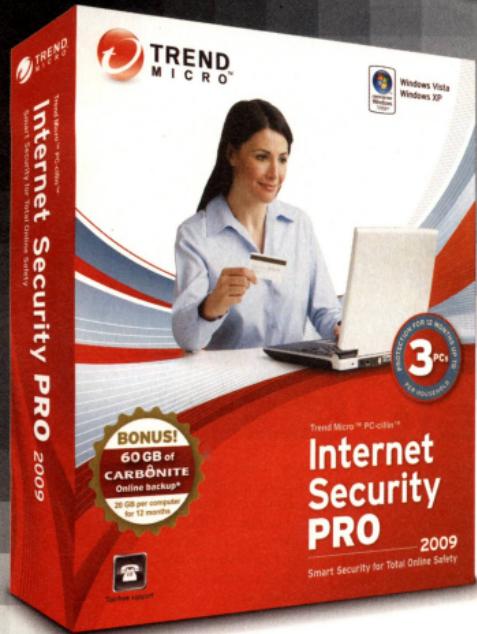
NOTE: For UserBench tests with MB/s and fps scores, higher is better; for time-based scores, lower is better. FAIL - did not complete the test. DNB - did not benchmark.

See page 10 for more details on the benchmarks.

Improved

Unbelievable but true!

***They said it couldn't be
done. We said it could.***



The 2009 version is:

- Faster** Up to 50% faster boot up
Up to 31% faster start up
Streamlined, intuitive installation & operation
Faster protection against new threats
- Lighter** Up to 36% lighter physical memory use
Up to 73% lighter kernel memory use
- Smarter** Enhanced parental controls
New worry-free content filer
New security activity dashboard
Adaptive proactive intrusion blocking
New automatic game mode
New mobile security
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Wi-fi network security
Keystroke encryption status
IM & webmail rating

For further information visit
protectmyidentity.com.au



Securing Your Web World

Best boards for less

Dan Gardiner tests six sub-\$150 motherboards using Intel's new P45 chipset.

GIGABYTE GA-EP45-DS3

PRICE \$130 | **CONTACT** RECTRON
PHONE (03) 8545 2833

WEB www.gigabyte.com.au

While Gigabyte's GA-EP45-DS3 was fractionally slower in some of our benchmarks, this board's mass of features more than made up for it. It's a full-sized ATX board with good quality power components (solid caps and ferrite chokes) that should help with board longevity. It also has two Gigabit Ethernet controllers that can be 'team'd to increase network throughput. CrossFire support thanks to two PCI-E slots, FireWire and masses of USB ports on the back panel. Its overclocking capabilities are pretty respectable, with intricate voltage controls available for tweakers. We easily reached 4GHz with our E8500 3.16GHz Core 2 Duo chip on our Intel air-based cooler — though for long-term use we'd probably recommend some more serious cooling. Gigabyte's power-saving software isn't quite as simple and easy to use

as ASUS's (below), but it was actually fractionally more effective at reducing power consumption. At idle, the DS3 was the best we tested, pulling around 111W (5% or so less than the P5Q SE/R) on average. Performance across all of the P45s we tested this month was often close to identical. As mentioned above, the two Gigabyte boards did prove a little slower in encoding performance, though the difference was only around 1-2%

at most. In gaming, all boards were nearly identical at higher resolutions. The DS3 has only one other real shortcoming, and that's its lack of RAID capabilities. If you're looking to set up a home/media server with redundant storage, you'll need to look elsewhere.

PC User says: Has heaps of features that easily make up for the 1-2% slower performance.

ASUS P5Q SE/R

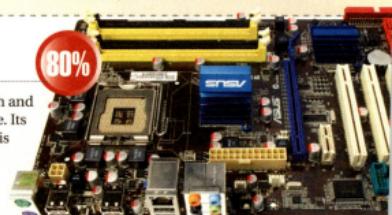
PRICE \$150 | **CONTACT** ASUS | **PHONE** 1300 278 788 | **WEB** www.asus.com.au

The P5Q SE/R is ASUS's lowest-priced P45-series board in a very large family, and like all those we tested here it supports the cheaper DDR2 memory. Unlike the DS3 above, it's only a 3/4-sized ATX board, and this smaller design means things have had to be shifted around. This has mostly been done well, though the positioning of the main 24-pin power connector (smack bang in the middle of the board), isn't the ideal place for it. There's a fairly decent range of features (a single PCI-E x16 slot, Gigabit Ethernet, six USB, coax S/PDIF audio output and RAID 0/1/5 support) though nothing that really sets it apart from the crowd. The quality of ASUS's

power components is mostly top-notch and its performance was good on the whole. Its energy-saving EPU chip didn't bring this one's idle power usage as low as the Gigabyte's (it only managed around 117W), but it did reduce power draw during high-res gaming by up to 10%. However, when doing CPU-intensive media encoding with energy saving set to Max, performance dropped by such a large degree that the PC drew nearly 30% more energy overall to complete the job because of the extra time needed. So if you plan on using power saving tech, be sure to set it to 'Auto' mode. The P5Q SE/R did prove to be a pretty

decent overclocker in general. Overclocking our Core 2 Duo E8500 didn't increase high-res gaming performance on any of these boards — so it's really only worth overclocking if you're doing CPU-intensive work.

PC User says: Offers a great mix of features, though the layout could be better.





Overclocking or energy saving?

These days, most motherboard boxes loudly boast of their content's prowess in both power-saving and overclocking. However, it's important to realise that these two features actually work against each other — you really do need to make a choice about which you want to use. (ASUS's EPU configuration program, for example, specifically prevents you from activating power-saving if you're overclocking.) While turning on energy-saving features can net you a 5% decrease in overall power consumption, overclocking your CPU will significantly increase its power draw. You can expect power usage (and likewise your power bill) to roughly go up in tandem with performance. On our E8500 Core 2 Duo, going from a standard clock speed of 3.16GHz to 4GHz increased the system's idle power draw from around 115W to 130W-135W — and that increase gets even larger when you tax the CPU. As we've mentioned in some of the reviews, overclocking the CPU — even by over 25% — also gives very little performance improvement for high-resolution gaming. At any resolution above 1,024 x 768, the graphics card is generally the far more important component. The area you'll see the most benefit is in media encoding and similar number-crunching tasks.



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MOTHERBOARDS: HOW THEY COMPARE

Component tested	ASUS P5Q SE/R	ECS P4ST-A	Foxconn P4SA-S	Gigabyte GA-EP35-DS3	Gigabyte GA-EP35-DS3L	MSI P45 Neo-F
TEST SYSTEM						
Processor	Intel Core 2 Duo E8500					
Memory	2GB DDR2-800					
Motherboard chipset	Intel P45 Express					
Graphics card	Gigabyte GeForce 8800 GT (512MB)					
Operating system	Windows XP Pro SP3					
TEST RESULTS*						
UserBench Encode 2008 (overall score)	43.94	44	43.77	43.38	43.34	44.13
- Audio time/rate (minutes:seconds/MB/s)	1:27/7.43	1:27/7.43	1:28/7.39	1:28/7.32	1:29/7.28	1:27/7.43
- Video time/rate (minutes:seconds/fps)	1:05/115	1:05/114.9	1:05/114.2	1:06/113.5	1:05/113.9	1:04/115.6
UserBench Image 2006 (minutes:seconds)	2:34	2:32	2:30	2:33	2:35	2:31
UserBench Security VR 2007 (minutes:seconds)	2:36	2:38	2:35	2:38	2:42	2:30
UserBench Crysis 2008						
- 1,024 x 768 (average fps)	59.01	59.37	59.32	59.16	57.15	59.34
- 1,680 x 1,050 (average fps)	31.52	31.52	31.53	31.53	31.57	31.53
- 1,920 x 1,200 (average fps)	25.34	25.34	25.35	25.34	25.34	25.31
UserBench UT3Bench 2008						
- 1,024 x 768 (average fps)	206.6	211.2	209.9	208.1	206.3	210
- 1,680 x 1,050 (average fps)	122.4	122.5	122.4	122.4	122	122.4
- 1,920 x 1,200 (average fps)	94.34	94.41	94.46	94.41	94.14	94.37

Please note that for time-based results in UserBench tests, a lower score is better because it means the test was completed faster. For all other benchmark results higher is better.

TEST BENCH > Upgrade report

HARDWARE / SOFTWARE / COMPONENTS

GIGABYTE GA-EP45-DS3L

PRICE \$135 / CONTACT RECTRON / PHONE (03) 8545 2833 / WEB www.gigabyte.com.au

The GA-EP45-DS3L is essentially a cut down version of the EP45-DS3; like the ASUS P5Q SE/R, it has a smaller footprint. And though it's a pretty decent board overall, in our opinion the DS3 is a better bang-for-buck choice — you get quite a lot more versatility for just \$15 extra. The DS3L has no RAID capabilities, though there's still a decent eight USB ports on the rear panel, plus S/PDIF audio out (coax and optical) and decent-quality power components. It lacks FireWire

and only has a single PCI-E x16 slot, so there's no ability to add a second ATI graphics card. The DS3L's layout is pretty clean, with good access to most sockets and slots, and there's a fairly large heatsink on the Northbridge, which should help keep things cool. This board didn't manage the same level of power-savings as the DS3, but it was still respectable, with an average idle power draw of 114.8W. The DS3L's main shortcoming is in performance; it was the



slowest in most tests we ran and performance when overclocking was likewise just average.

PC User says: Not a bad board, but its bigger brother is the better-value buy.

FOXCONN P45A-S

PRICE \$150 / CONTACT ALTECH COMPUTERS / PHONE (02) 8831 9999 / WEB www.foxconnchannel.com

Although this budget P45 wasn't quite the best we saw, if it's an indication of what's to come, Foxconn is certainly a brand to keep an eye on. The P45A-S includes a good range of features, with twin PCI-E x16 slots for CrossFire support, the requisite six SATA ports with RAID 0/1/5, Gigabit Ethernet and decently-large heatsinks. It has serial, eSATA, FireWire, four USB 2.0 and coax S/PDIF audio, so there's pretty much a dash of everything here. As on the ECS P45T-A, the overclocking options aren't quite as user-

friendly or extensive here, and unlike the Gigabyte and ASUS there's also no built-in BIOS flashing utility. We did manage to get our E8500 processor overclocked to 4GHz on this board, it needed quite a bit more juice to get there stably (the chipset, RAM and CPU voltages all needed to be ramped-up to higher levels than on other boards). This in turn means more heat and potentially shorter lifespans for board components, so this isn't the best choice for overclockers. Performance was middle of the pack, and its



idle power usage was decent at 114.6W.

PC User says: A decently-featured P45 at a respectable price.

MSI P45 NEO-F

PRICE \$149 / CONTACT MSI / PHONE (02) 9748 0070 / WEB www.msicomputer.com.au

MSI's basic P45 was the quickest of those we tested in application performance. In other areas, however, it's a little perplexing. It's been equipped with both a parallel printer (LPT) port and a serial port on the rear panel — though barely any tech products use either port these days. And in combination they take up quite a large amount of space, which could perhaps have been better used by installing USB 2.0, digital audio or eSATA ports. The Neo-F offers RAID 0/1/5, though there's sadly no FireWire. MSI's board is also

missing some of the small touches, for example, there's no built-in BIOS flashing utility, so you'll need to create a bootable floppy (or USB flash drive) in order to upgrade your BIOS. The power components aren't quite of the same calibre as on some of the boards — there's roughly 50% electrolytic capacitors used here (as opposed to the more robust solid caps seen on Gigabyte and ASUS boards). The Neo-F doesn't offer MSI's own GreenPower energy-saving tech, and of those we tested it



had the highest idle power-draw of 118W.

PC User says: A good board for around \$115, but can't compete at the \$150 price point.

ECS P45T-A

PRICE \$145 / CONTACT ALTECH COMPUTERS / PHONE (02) 8831 9999 / WEB www.ecs.com.tw

ECS's low-end P45 is a full-ATX sized model that's fairly similar to the Foxconn in features and layout. It packs two PCI-E x16 graphics card slots, eSATA and serial ports, six SATA ports (with RAID support) and decent chipset coolers. Its power components are, however, a little wanting, with the bulk of capacitors the older electrolytic type. In terms of performance, ECS's P45T-A mostly just ran with the pack, though it did stand a few millimetres above the crowd in gaming speed at low-to-medium resolution. However, it was

only ever ahead by a few percent at most, and this advantage all but disappears at higher resolutions. As with the MSI and Foxconn offerings, this board doesn't have its own brand-specific power-saving technology. That said, Intel has already included some pretty decent power-throttling capabilities in the P45, and the P45T-A managed a respectable 116W at idle because of this. The ECS doesn't have the best overclocking controls, but overall, it wasn't very difficult to get running at 4GHz.



PC User says: A decent all-rounder, but it could do with better-quality power components. ☺



The world's fastest graphics card?

Darren Yates tests the new ATI Radeon HD 4870 X2 and the Nvidia GeForce 9800 GTX+.



ASUS EN9800GTX+

PRICE \$290 / **CONTACT** ASUS / **PHONE** 1300 278 788 / **WEB** www.asus.com.au

Nvidia's original GeForce 9800 GTX didn't exactly get us doing hand springs with its performance. Recently however, the chip vendor has begun pumping out new smaller and faster 55-nanometre versions of this card, dubbed the GeForce 9800 GTX+. While the chip internals are the same, clock speeds are noticeably faster, up from 675MHz to 738MHz while the shader clock is up from 1690MHz to 1836MHz. We tested it up against Gigabyte's GeForce 9800 GTX to see

just how much of a difference the clock speed actually makes. And the answer is quite a bit. Speed improvements are as much as 17.5% over the original GTX at a high resolution of 1,920 x 1,200-pixels. This showed up on Crysis, with the 1,920 x 1,200-pixel frame rate of 31.64fps well ahead of the GTX's 26.91fps. In fact, the higher you go in gaming resolution, the more impressive the GTX+ looks. This card is better value than the 4870 X2 or the GTX 280. Both of these cards are

double the price but don't deliver double the performance, however you'll need to replace the GTX+ sooner than either of the other two.

PC User says: Enough speed to handle *Crysis* at 1,440 x 900 pixels.

HIS RADEON HD 4870 X2

PRICE \$690 / **CONTACT** ALTECH COMPUTERS
PHONE (02) 8831 9999
WEB www.hisdigital.com

ATI has started an assault on the gaming market with the new Radeon HD 4870 X2. Under the bonnet there are two Radeon HD 4870 GPUs running in CrossFire mode on a single card with 1,600 stream processors and 2GB of GDDR5 memory onboard. Core clock speed is 750MHz while the memory hits 900MHz. If you're expecting this card to wipe the floor with Nvidia's GeForce GTX 280, think again. If you're gaming below 1,920 x 1,200-pixels, the GTX 280 is actually faster than the X2 by about 4%. It's not until you reach 1,920 x 1,200-pixels that the X2's inherent performance takes it over the line first. The problem for ATI is that the best street price for an X2 is about \$660. Nvidia's GTX 280 is down to around \$540. So, on a bang-per-buck rating, the GTX 280 is actually the more cost effective choice.

PC User says: Fast, but best at high resolutions.



GRAPHICS CARDS: HOW THEY PERFORM

Graphics card	HIS Radeon HD 4870 X2	ASUS EN9800GTX+	Gigabyte GeForce 9800 GTX (reference only)	Zotac GeForce GTX 280 (reference only)
GPU	ATI Radeon HD 4870 X2	Nvidia GeForce 9800 GTX+	Nvidia GeForce 9800 GTX	Nvidia GeForce GTX 280
Core/memory clock (MHz)	750/900	738/1100	675/1100	602/1107
Memory	2GB GDDR5	512MB GDDR3	512MB GDDR3	1GB GDDR3
Stream Processors	1600	128	128	240
Driver software version	Catalyst 8.3	ForceWare 177.79	ForceWare 177.79	ForceWare 177.79
TEST RESULTS				
UserBench Crysis 2008				
- 1,024 x 768 (average fps)	65.81	67.13	61.62	70.59
- 1,440 x 900 (average fps)	59.19	45.5	38.38	60.53
- 1,680 x 1,050 (average fps)	55.41	39.22	33.36	57.28
- 1,920 x 1,200 (average fps)	49.73	31.64	26.91	47.74
UserBench UT3Demo 2008				
- 1,024 x 768 (average fps)	208.07	215.58	211.84	222.67
- 1,440 x 900 (average fps)	203.45	154.84	135.01	206.81
- 1,680 x 1,050 (average fps)	198.24	148.59	129.74	200.6
- 1,920 x 1,200 (average fps)	189.64	115.26	100.2	172.13
UserBench HL2LC 2008				
- 1,024 x 768 (average fps)	150.3	154.2	141.3	154.9
- 1,440 x 900 (average fps)	159.5	150.4	149.9	150.2
- 1,680 x 1,050 (average fps)	158.5	123.7	110.1	149
- 1,920 x 1,200 (average fps)	157.4	105.4	91.2	144.8



www.runnings

Ben Hardwidge explains how you can replace your stock cooler and get some peace and quiet.

You know that whiny hiss emanating from your PC? It doesn't have to be such an annoyance. The chances are that a lot of that racket is coming from the stock cooler that came with your CPU. This cooler probably does an adequate job of keeping your CPU's temperature under control, but it may also sound a bit like there's a miniature turbo-prop aircraft traversing the innards of your PC. If you're still using the standard Intel or AMD stock cooler, then it's well worth upgrading. Not only can an alternative cooler reduce the noise generated by your PC, but it also reduces the temperature of your CPU, allowing you to overclock it beyond its stock speed before approaching the danger zone.

If you just want to cool a dual-core CPU, or even overclock it, then the plain old Freezer 7 Pro will do the job nice and quietly for a shade under \$40. Meanwhile, those of you looking to quench the fiery thirst of a high-end quad-core CPU can still find solace for under \$80.

This month, we've taken eight alternative CPU coolers for a spin to see which ones can cool a high-end, quad-core CPU at full load without making too much noise.



ARCTIC COOLING FREEZER 7 PRO

PRICE \$40 / **CONTACT** WESTON
TECHNOLOGY / **PHONE** (02) 9667 3238
WEB www.arctic-cooling.com
SOCKETS LGA775

Despite its age, the Freezer 7 Pro has survived the transition to quad-core CPUs remarkably well. It uses standard LGA775 connectors. Although it's priced fairly low, the Freezer 7 Pro

adequately cooled our Core 2 Extreme QX6700 at full load, although we had to crank up the fan speed, resulting in a terrible racket. Quad-core overclockers ought to look

PC USER
BEST BUY

How we tested

Each CPU cooler was tested using CoreTemp. One reading was taken when the CPU was idling, and another after running Stanford's SMP Folding@Home client at 100% load for a few minutes.

elsewhere, but it will happily cool an overclocked, dual-core CPU very quietly, and it's a bargain for the money.

PC User says: A bargain for dual-core but a little noisy.

HUGE GADGET GUIDE

Grab a pen and your Christmas shopping list. This month we review 60 of the hottest devices.



- GPS navigation devices page 33
- Compact digital cameras page 38
- Mobile phones page 46
- Portable media players page 54

PLUS on page 61 we show you how to use our exclusive RockPod 2009 software to convert video and audio for iPods, iPhones and other portable players.



Go go gadget!

Nick Mailath takes a ride with the latest GPS navigation devices.



We didn't find a huge amount of difference between the GPS devices we tested in this roundup and the units we tested last year. The most notable change is the introduction of live traffic data. If a GPS can pick up traffic channel data, it can use it to show you if traffic will affect your route. You can then choose to change your route if you want to avoid the traffic. As well as traffic conditions, some traffic data services can alert you to temporary roadworks and road closures. It's a handy feature to have, but it's being introduced slowly. At the moment, only some of the capital cities have the service. This should change within the next year or so, making it a very popular feature in GPS units.

There's also been a change in focus from extra features like media playback back to straight GPS functionality. One change we noticed on almost every model was a compass heading on the map screen — this should help convey your location and direction more accurately.

We tested each GPS device in-vehicle, using both a set destination and general driving with the map display enabled. Overall we were pleased to see a steady improvement in these latest models.

GPS DEVICES UNDER \$300

GARMIN NUVI 250

PRICE \$230 / CONTACT GARMIN / PHONE 1800 235 822 / WEB www.garmin.com.au

If you're after a budget GPS system, the Nuvi 250 is just about the only worthwhile option. At under \$250 it's excellent value. It's also the most compact unit we tested — at less than 150g it easily fits in your pocket. The five-hour battery life and 3.5in screen make it easy to use as a handheld unit for getting around on foot in unfamiliar territory. The voice navigation is restricted to simple instructions without text to speech (TTS) support, so the device won't try to pronounce street names, but it will tell you when and where to turn. The unit has 2D and 3D map viewing and you can even change the icon that represents your car (from a boring arrow to a little sports car or 4WD). The interface is easy to navigate,



85%

and selecting a destination is very simple. **PC User says:** You can't go wrong with the Nuvi given its price and features.

PC USER
BEST BUY

Buyer's checklist

Here are some key features to look for when buying a GPS device, depending on your budget.

Text to speech. Not all GPS devices can tell you the names of streets you're approaching. If you want to know what street you're on or which street to turn into without taking your eyes off the road, this is a very handy feature.

Traffic channel data. Some GPS devices can pick up signals from the live traffic channel, helping you avoid traffic incidents. This isn't a common service yet, but it can save you a lot of time by warning you about traffic jams, road closures and roadworks.

Bluetooth. This is a useful feature if you'd like to make hands-free calls on your mobile via the GPS device.

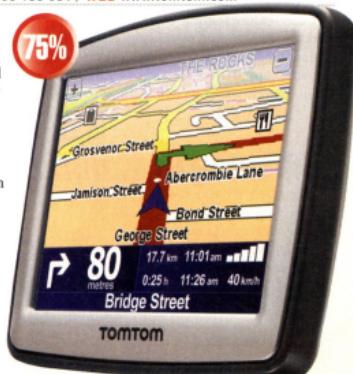
Bigger screen. Unless portability is a must-have, go for a larger screen — 4.3in is ideal. If you'll be on foot or without power for long periods of time, having a smaller screen will help conserve battery life.

TOMTOM ONE

PRICE \$280 / CONTACT TOMTOM / PHONE 1300 135 604 / WEB www.tomtom.com

The TomTom's compact design makes it one of the most portable units around and the new slimline EasyPort mount eliminates the bulky-looking windscreens mounts we've used to seeing with many GPS units. Inputting our destination was straightforward and navigation was good. The voice guide was better than average, making directions easy to follow. The 3.5in screen is on the smaller end of the scale, with most of the competition shifting to the slightly larger 4.3 for extra viewing real estate. The unit is Traffic Message Channel (TMC) ready, for live traffic alerts, but you'll have to buy a separate receiver to use the service.

PC User says: This isn't bad value for a budget GPS unit.



75%

TOMTOM

LASER NAVIG8R M35

PRICE \$210 / CONTACT LASER / PHONE (02) 9889 3388 / WEB www.laserco.com.au

The M35 boasts some pretty big features for a newcomer to the market. Australia's 'most accurate' maps being the main selling point. The Navig8r is equipped with mapping data from PMSA Australia, a government-owned company providing roads and street addresses based on government and local council data. While other GPS devices are forced to make an educated guess as to specific street addresses, PMSA's data should give the M35 pinpoint accuracy. Sadly, accurate maps are relatively useless without

software that can make good use of them. In testing, the M35 took routes that didn't exist and when you continued driving on a road it didn't recognise it would lock up or simply give us an 'invalid trip' error. The unit's features show a lot of promise for a device at this pricepoint, but we got too many errors to recommend it.

PC User says: With some tweaking and ironing out of bugs the Navig8r could be a great little device, but it's not yet ready for general consumption.

50%



GPS DEVICES UNDER \$500

UNIDEN TRAX 430

PRICE \$350 / CONTACT UNIDEN / PHONE (02) 9599 3355 / WEB www.uniden.com.au

Since reviewing the first GPS unit available from Uniden we've been constantly impressed with the improvements they've made each year, and this unit is no exception. The Trax 430 has a very polished design and easy-to-use interface. The maps flow smoothly across the screen and the TTS works very well. Some main roads or highways are referred to by their state route number (for example, the Pacific Highway is called S111), and once you get down to streets and avenues, the correct names are pronounced with varying success. There are some nice little touches built in to this unit,

like maps going to split screen and animations for driving through roundabouts (showing your car travelling around the roundabout rather than an icon jumping in one side of the roundabout and out the other). The only thing it's lacking on this unit is support for the traffic data channel, but if you're not in a capital city that's of no use to you anyway.

PC User says: A great little unit from Uniden.



MAGELLAN ROADMATE 1412

PRICE \$380 / CONTACT NEXT DESTINATION / PHONE (08) 9444 0233 / WEB www.nextdestination.com.au

For what it costs, the 1412 offers quite a bit in return. It has a large 4.3in screen, TTS capabilities and extensive mapping — all crammed into a 200g package that's highly portable. We had trouble changing the voice giving the instructions — we couldn't get other voices to load. There wasn't anything wrong with the default voice — it's clear and concise — but it's interesting to check out the other accents available. The auto split screen feature is another standout ability showing upcoming turns more clearly. The windscreens mount is also exceptionally solid, keeping the screen free of vibration and easily read. Units with 4.3in screens

can take up a lot of space, but the bezel surrounding the screen is relatively thin, maximising the viewable area and keeping your windscreens obstructions to a minimum. The internal battery will keep the unit powered up for around three hours from a full charge, which is enough to keep you going if you feel inclined to put the unit on your bike and go for a pedal.

PC User says: The unit worked well and offered decent features for the price.

80%



Missing in action

We contacted Navman for review models but they declined to submit products as they have a new range about to be released.



NAVMAN

Tech terms

Text To Speech (TTS). A GPS device's ability to pronounce street names.

Traffic Message Channel (TMC). The TMC broadcasts live traffic data via FM radio. If your GPS device has the ability to pick up the TMC broadcast it will use the information to alert you to traffic jams or reroute you to avoid delays. Some GPS devices are capable of picking up the live traffic channel straight out of the box, while others require you to purchase a separate antenna in order to pick up the signal. Unfortunately, the service is currently only available in some capital cities.

HOT PC!

GARMIN NUVI 265WT

PRICE \$470 / CONTACT GARMIN / PHONE 1800 235 822 / WEB www.garmin.com.au

The 265WT looks very much like the Nuvi 250 with the screen stretched to 4.3in. Luckily there's also a bunch of extra features inside to account for a doubling of the price. Live traffic data is received by an antenna built into the power cord and displayed on the map by changing the colour of your route — this can help you avoid traffic jams, road closures and even roadworks. This unit also includes Bluetooth (allowing you to enjoy hands-free calls from your mobile when you're on the road), TTS and Garmin Garage (customisable car icons). There's also a 'Where am I?' feature that lets you see your exact location with the press of a button so there's no confusion if you're

trying to explain your location in an emergency. Navigation on the Garmin models was decent, as we've found using others, but at twice the price of the Nuvi 250, this unit isn't cheap. Make sure you'll use the extra features before laying down your hard-earned cash.

PC User says: *Pricey, but worthwhile if you need the extra features.*



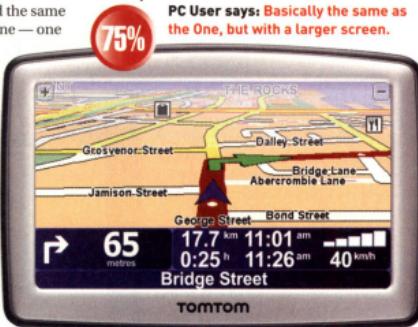
TOMTOM XL

PRICE \$380 / CONTACT TOMTOM / PHONE 1300 135 604 / WEB www.tomtom.com

The XL is very similar to the TomTom One except for its larger 4.3in screen which is certainly a key selling point. Mapping and navigation is virtually the same. Unfortunately, the XL had the same quirks we found on the One — one of the most frustrating was that our route would not be cleared even after reaching our destination. The route remained active even after we left the car for 30 minutes and the GPS had been turned off. The maps also look a little bland in comparison to others and the unit's cold boot time was slightly longer than average.

Fortunately, the actual navigation and voice guidance can't be faulted, so at least you should have no problems reaching your destination.

PC User says: *Basically the same as the One, but with a larger screen.*



GPS DEVICES: HOW THEY COMPARE

	Garmin Nuvi 250	Garmin Nuvi 265WT	Laser Navigator M35	Magellan CrossOver	Magellan Maestro 4250	Magellan RoadMate 1412	Mio Movn 370	Tom Tom One	Tom Tom XL	Pioneer AVIC-F500BT	Uniden Trax 430
Price	\$230	\$470	\$210	\$830	\$570	\$380	\$530	\$280	\$380	\$900	\$350
Screen size	3.5in	4.3in	3.5in	3.5in	4.3in	4.3in	4.3in	3.5in	4.3in	5.8in	4.3in
TTS	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bluetooth	No	Yes	No	No	Yes	No	Yes	No	No	Yes	No
TMC out of the box	No	Yes	No	No	No	No	No	Yes	No	No	Yes
3D landmarks	No	No	No	No	No	No	Yes	No	No	No	Yes

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_GPS DEVICES OVER \$500**MIO MOOV370**

PRICE \$530 / **CONTACT** MIO / **PHONE** 1300 646 477
WEB www.mio-tech.com.au

In our last GPS roundup, we were very impressed by the models we tested from Mio. We therefore had high expectations about Mio's new Moov370. It certainly did impress us, though it's hard to make huge improvements on a model that was already great to begin with. The design of this latest model is a lot sleeker than the previous version, with a gloss black and silver accented case. As with the older CS20, this model is still big on value with Bluetooth and support for live traffic updates straight out of the box. The 4.3in screen is sharp and clear, making maps and directions easy to see. The maps seemed to scroll a little less smoothly than in the previous version, but the



90%

difference wasn't enough to be an issue. The map data includes speed zones and camera alerts, however like most of the other units in the roundup, the speed zones weren't entirely accurate. Thankfully, the unit's 'speeding' warning isn't too obtrusive, so we didn't

mind too much when it mistakenly warned us we were speeding, even though we weren't.

PC User says: This new version is still big on value and performance.

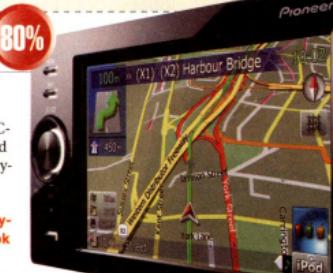
PIONEER AVIC-F500BT

PRICE \$900 / **CONTACT** PIONEER / **PHONE** 1800 988 268 / **WEB** www.pioneer.com.au

The AVIC-F500BT is definitely not your run-of-the-mill GPS system. It's designed to heavily integrate into your stereo system. The package includes a 4 x 50W amplifier that's small enough to be installed under a seat. This gives the AVIC control over your speakers for navigation instructions, media playback and phone calls. You can even take the display and use it in other vehicles. The 5.8in screen is huge compared to the other

models. Navigation was good and the shortcut buttons on the side save going through the touch screen menus. The AVIC-F500BT certainly offers the most integrated solution on the market (outside of a factory-mounted GPS option), yet it's still flexible enough to take from one car to another.

PC User says: If you want a unit that's fully-integrated with your car stereo, take a look at this one.



80%

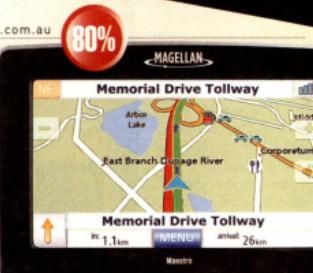
MAGELLAN MAESTRO 4250

PRICE \$570 / **CONTACT** NEXT DESTINATION / **PHONE** (08) 9444 0233 / **WEB** www.nextdestination.com.au

The Maestro 4250 has a very polished look in comparison to the ruggedness of the Crossover. Guidance was quite decent, with good volume from the internal speaker and clear instructions. If you take a wrong turn, rather than piping in with the usual: "Do a U-turn when possible," it quietly recalculates your route and lets you continue on your chosen road. It will of course ask you to turn around if no alternative is possible, but it's a nice change not to instantly resort to U-turns.

The maps were smooth and vivid on the 4.3in screen. There are tons of additional features too like voice commands which let you speak certain commands and the 4250 will carry out said action. At times it's easier to just pull over and tap the screen, but it's a handy feature to have. It has a built-in traffic receiver but it has to be activated and there's a fee involved.

PC User says: A very polished unit for a respectable price.



80%

MAGELLAN CROSSOVER

PRICE \$830 / **CONTACT** NEXT DESTINATION / **PHONE** (08) 9444 0233 / **WEB** www.nextdestination.com.au

The Magellan Crossover knows no boundaries when it comes to leading you around — its ruggedised design makes it water and dust resistant, making it a real go-anywhere device. When you power it up you're presented with three options for navigation — streets, land or water. Switching between modes gives you specific features relative to your activities. When trekking using the land mode, for example, you can

leave a trail marked on the map to see exactly where you've been. The eight-hour battery gives you plenty of time for a day of trekking with no power supply. The device itself is a bit bulky, but still compact enough that it's not uncomfortable to carry. The interface is consistent with the other Magellan models and is easy to use.

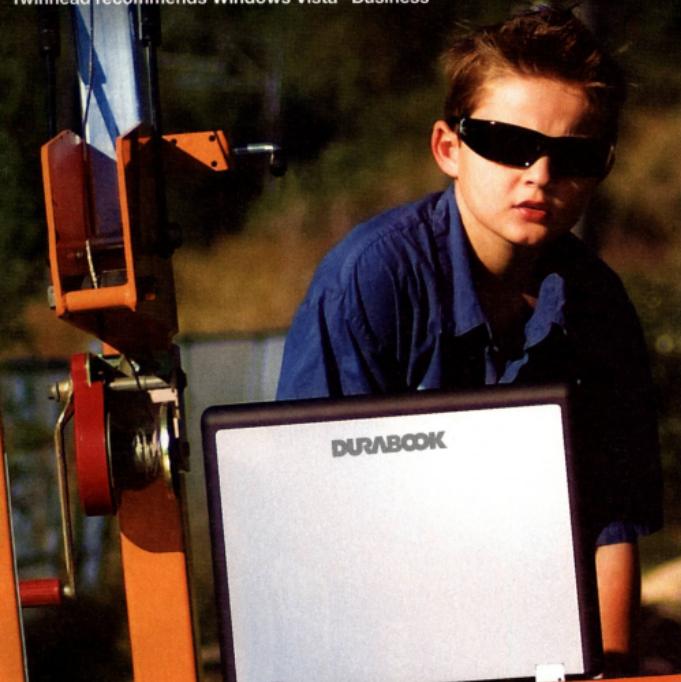
PC User says: An ideal solution for the outdoor adventurer.



80%

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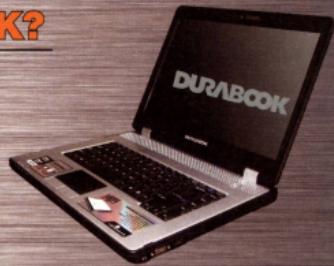


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TWINHEAD

The Notebook Specialist

Snap and go

Darren Yates rounds up the latest ultraportable digital still cameras.

One thing was clear after testing these cameras — if you pick up an ultraportable camera with less than 8MP, you're just not trying. These devices are competing head-on against cameraphones for attention nowadays so it's not surprising that megapixel counts are so high. Thankfully, for the most part, image quality was surprisingly good, as were

the list of features on these models. In the past, ultra-compact meant you were lucky to get an optical zoom lens. These days, every camera we tested offered at least a 3X optical zoom.

Image quality is always a combination of megapixel count and lens quality and while few of these cameras will trouble digital SLRs for image quality, at

least slipping one of these into your pocket won't tear it apart.

The big new feature we saw in this roundup was the ability to capture high-definition video at up to 1,280 x 720 pixels — it was only on a small handful of models but it could make you reconsider buying a dedicated video camera.

CAMERAS UNDER \$300

NIKON COOLPIX L18

PRICE \$180 / **CONTACT** NIKON / **PHONE** 1300 366 499
WEB www.nikon.com.au

This was the cheapest model we tested and the only one with a street price under \$200. There's plenty to like about this camera, from its big 3in LCD screen to its AA batteries. In fact, this was the only camera to use standard AA batteries. That means you can use NiMH rechargeables or buy some Eveready Lithium batteries when you're caught short. It uses cheap Secure Digital (SD) flash cards for storage and includes a 3X optical zoom lens. The image sensor captures 8MP so you're not missing out here in comparison with other models. As for image quality, our test images were well lit and sharp across the frame, something ultra-compacts with their traditionally small lenses aren't always known for. It handled difficult lighting conditions comparatively well and will capture images in 1,920 x 1,080-pixel format for viewing on HDTVs. Video is captured in the lesser-quality Motion JPEG format, so it won't replace your camcorder. However, at this price, you'll hardly go wrong.

PC User says: The best under \$200.

CANON DIGITAL IXUS 80 IS

PRICE \$240 / **CONTACT** CANON / **PHONE** 1800 021 167
WEB www.canon.com.au

This camera may have \$349 stamped on it but you'll find it on the street for \$240 and for that price it's an impressive little model. As well as the fairly standard 8MP sensor and 3X optical zoom lens, the Digital IXUS 80 IS has built-in optical image stabilisation, which is a neat trick in a camera this size. It results in sharp images almost every time and allows the camera to use a slower shutter speed and/or ISO setting to allow more light in. It's the one feature the Nikon CoolPix L18 lacks.



The IXUS 80 IS also captures 640 x 480-pixel video at 30fps but again, in low-efficiency Motion JPEG format which means around 10 minutes per gigabyte. It uses a proprietary LiIon battery and relies on standard SD card storage. This was one of the lightest cameras we tested, along with the CoolPix L18, but it was smaller than that camera thanks to its smaller battery.

PC User says: An excellent camera with image stabiliser for under \$300.



Buyer's checklist

If you're about to buy an ultra-compact digital camera, consider these features:

* **Storage.** Does the camera support new high-capacity Secure Digital (SDHC) cards? These are the best bet for the future.

* **HD video capture.** Can the camera capture compressed video at 1,280 x 720

pixels for playback on HDTV? It should handle at least 640 x 480 pixels and 30fps.

* **Optical image stabiliser.** This will help give you better-quality shots in low light and when on the run.

* **Video compression.** Cameras that use MPEG-1 or MPEG-4 video compression give

you much more video per gigabyte than those using standard Motion JPEG.

* **Batteries.** Cameras that use proprietary batteries can be smaller but you'll need to take a spare with you in case it runs out. AA batteries are cheap and easier to get on holiday but make a camera slightly bulkier.



KODAK EASYSHARE V1073

PRICE \$200 / CONTACT KODAK / PHONE 1800 267 588 / WEB www.kodak.com.au

Each brand has its own bent — Samsung offers lots of functions, FujiFilm has big specs and for Kodak it's all about the interface. The EasyShare V1073 is a great example of this — it's the only camera we tested with a touchscreen interface. There are barely half a dozen buttons on this camera; the majority of settings are adjusted via the touchscreen. That's good and bad — it's easy to operate but hard to keep that screen clean. However, it competes well above its weight by offering 720p (1,280 x 720-pixel) video capture in MPEG-4 mode to SD or SDHC flash cards. You can capture up to 29 minutes per file. For a \$300 camera, that's a sensational effort. Nothing else comes close. It doesn't have the HDMI output of the Samsung NV24HD, but at half the price, we don't mind. The V1073 doesn't take the best images of the group, but when you combine its HD video capture with the price and features, it's a camera you can take anywhere and capture almost anything.

PC User says: Capturing 720p video at 30fps with a \$299 camera makes us happy.



SAMSUNG I8

PRICE \$250 / CONTACT SAMSUNG / PHONE 1300 369 600 / WEB www.samsung.com.au

Samsung takes the view that a digital camera should be capable of doing more than just taking photos, so its i8 model doubles as a portable media player that plays MPEG-4-style videos as well as MP3 audio via earphones. However, the question still has to be asked about its image quality — we'd say it's 'passable', although not as good as the Canon or Nikon models in this category. It's a true ultra-compact in the sense that it doesn't have a lens barrel extending outside the confines of the camera chassis, yet it still offers a 3X optical zoom lens to go with its 8MP image sensor. If you're planning to watch videos on the 2.5in LCD screen, you'll need to use Samsung's video conversion software, so it works out a little less convenient than if you could just watch, for example, Xvid videos on it. This one also captures MPEG-4 video at 640 x 480-pixel resolution and 30fps, which is better than most we tested.

PC User says: Lots of features but the Kodak's 720p video capture wins out.



SONY CYBER-SHOT DSC-W150

PRICE \$290 / CONTACT SONY / PHONE 1300 137 669 / WEB www.sony.com.au

This Cyber-shot DSC-W150 retails for \$329, although you'll find it everywhere for less than \$300. Like the IXUS 80 IS, this camera features optical image stabilisation, however this also has a huge 5X optical zoom lens — the biggest we saw in this ultra-compact form factor. While our 8MP test images were sharp enough, the W150 didn't handle the difficult lighting conditions of our view down Goulburn St in Sydney's CBD. Shadowed areas were dark and somewhat blue in colour, while distance areas were well lit and accurately coloured. The W150 uses MPEG-1 video compression, which is better than the Motion JPEG video on most models and it captures 640 x 480-pixel video at up to 30fps. The only downside is that the W150 relies on MemoryStick flash cards that are traditionally more expensive than SecureDigital.

PC User says: Optical image stabiliser helps but struggled with difficult lighting conditions.

Tech terms

Optical image stabiliser. A mechanism that reduces shaking and helps give sharper images, particularly in fast action or low light shots.

JPEG. Short for 'Joint Photographic Experts' Group', it's a form of image compression used by all compact digital still cameras to enable hundreds of shots to fit onto a memory card.

HD. Short for 'high definition', this refers to video that's captured or displayed at greater than 720 x 576 pixels.

H.264/MPEG-4. Cameras that capture video in this format enable you to capture as much as an hour per gigabyte of storage or capture in high-definition at up to 1,280 x 720 pixels.

MP. Short for 'megapixel'. A unit of measurement for digital cameras equating to a million pixels.

The pixel count is taken by multiplying the horizontal by vertical resolution of the image sensor in the camera.

Pixels. Short for 'picture elements', the individual dots that make up a digital image.

Do you need all those pixels?

Having 10MP or 12MPs worth of image might sound like a lot more than 8MP but in practice, even if you intend to print out images at full-page A4 size, do you really need that many megapixels? Even a 6MP camera gives you

enough pixels to produce excellent full-page A4 prints and if the budget won't quite stretch to \$300 you'll occasionally see big-name camera specials from the likes of Harvey Norman selling for well under the \$150 mark. It's the

extra features such as image stabilisation, larger zoom lenses and video capabilities that earn the models reviewed here their higher price tags. But remember, not everyone needs top-drawer specs.

CAMERAS UNDER \$400



FUJIFILM FINEPIX F100FD

PRICE \$390 / **CONTACT** FUJIFILM **PHONE**

1800 226 355 / **WEB** www.fujifilm.com.au

Fujifilm has long offered more specs for your dollar than most other brands and the FinePix F100fd keeps up that tradition with its 12MP image sensor and 5X optical zoom lens, all for under \$400. It also comes with an optical image stabiliser and a very high ISO sensitivity to improve image sharpness in low light. We tested the camera in low-light conditions and the results weren't bad. The important thing to remember is the higher the ISO speed, the more noise you'll see in your images. The F100fd does a fair rather than brilliant job at handling the noise. Even at ISO 400, the compression noise in the JPEG images tends to be a bit noticeable. Interestingly, the flash card slot supports both XD-Picture and SD/SDHC cards. This is a big move for FujiFilm and suggests to us that the popularity of XD-Picture may be starting to fade just a little.

PC User says: Big on features but JPEG compression noise becomes more obvious at lower light levels.

CANON DIGITAL IXUS 860 IS

PRICE \$370 / **CONTACT** CANON

PHONE 1800 021 167

WEB www.canon.com.au

The Digital IXUS 860 IS is getting a little long in the tooth now, but it's still on the market (though we wonder for how much longer given the low price of the higher-spec'd Digital IXUS 970 IS). The 860 IS features an 8MP sensor and 3.8X optical zoom but the Digital IXUS 80 IS goes close to matching this for about \$100 less! It'll capture 640 x 480-pixel video at 30fps but in Motion JPEG format up to a limit of 4GB or one-hour, whichever comes first (on average, expect to get around 15 minutes per gigabyte at best). Image quality is as good as the IXUS 80 IS and the larger 3in LCD screen might just make capturing images a little easier than the 80 IS' 2.5in screen. Bottom line is the 860 IS isn't \$100 better than the 80 IS and that will probably see it go soon.

PC User says: Not a bad camera but doesn't do enough for the price tag.

NIKON COOLPIX S52

PRICE \$330 / **CONTACT** NIKON

PHONE 1300 366 499 / **WEB** www.nikon.com.au

The Coolpix S52 is a traditional-looking ultracompact with its small diameter lens and big LCD screen on the back. It's based on a 9MP image sensor and despite the small lens, still manages a 3X-optical zoom factor. We were pleased to see it included optical image stabilisation, however for its price, it doesn't do much else. Video capture is more of an afterthought here than on other models, particularly up against the HD video capture of the \$299 Kodak EasyShare V1073. Still, it's one of the lightest if not the most compact of the cameras. With no HD still image capture option for direct output to an HDTV, and at roughly twice the price of the L18, I don't think it's twice as good. In fact, you could argue, given the price difference and features, that the Coolpix L18 would actually be a better bet all-round.

PC User says: Definitely compact but despite the good image quality, it doesn't do enough for the price.

How we tested

We took each camera and set it up to capture images at its maximum resolution using auto settings. We then captured a range of shots from our vantage point on Goulburn St in Sydney's CBD. We examined the shots for a range of factors:

* Barrel distortion. Typically seen in wide-angle mode where images appear

to be curved on the edge as a result of the curvature of the lens.

* JPEG compression/digital noise. We checked for general noise levels or JPEG compression patterns due to too high a compression level.

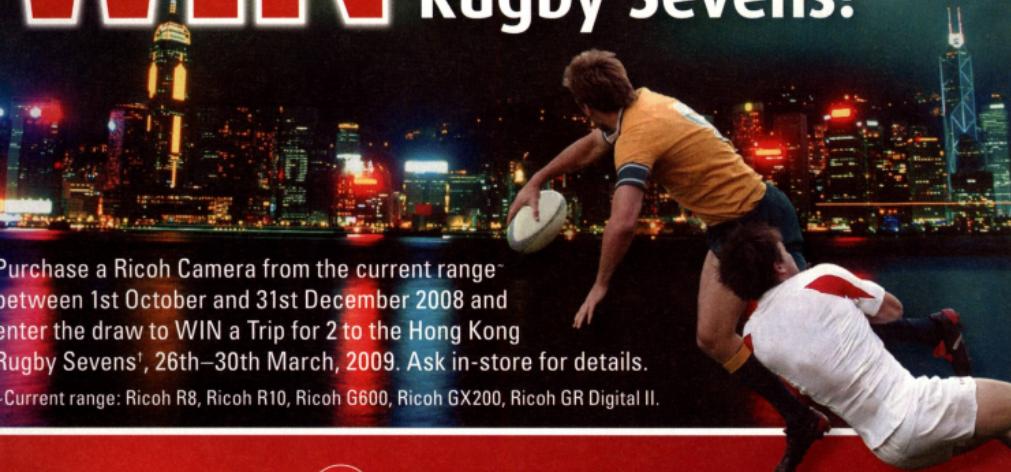
* Handling of difficult lighting conditions. All cameras do a great job in bright,

outdoor light. How they handle mixed lighting conditions is more telling.

* Chromatic aberration. Lens errors that cause sharply contrasting areas to give green or purple edges.

We then compared video capture capabilities and price to give a final mark out of 100.

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CAMERAS \$400 AND OVER**CANON DIGITAL IXUS 970 IS**PRICE \$430 / CONTACT CANON / PHONE 1800 021 167 / WEB www.canon.com.au

For a bit more than the IXUS 860 IS, the 970 IS delivers a 10MP image sensor coupled with a 5X optical zoom, which is a neat effort in this category and only surpassed by Fujifilm's FinePix F100fd. I'm not sure about the curved grip — it felt comfortable but also a little slippery and harder to hold on to. It also comes with a viewfinder but it's barely useful, you'll use the 2.5in LCD screen much more.

Canon does one thing very well and that is image quality, producing nicely lit, sharp images. Video is not so good; while other vendors offer MPEG-1 or MPEG-4 or even H.264, Canon's video capture is limited to Motion JPEG. This isn't a bad camera but it'd be nice if it handled video a bit better.

PC User says: Great photography but better video support would help at this price.

**NIKON COOLPIX S600VR**PRICE \$420 / CONTACT NIKON / PHONE 1300 366 499 / WEB www.nikon.com.au

Like Canon's range, Nikon too has two ultra-compact models straddled on either side of the \$400 mark. The S600VR delivers Nikon's Vibration Reduction image stabilisation, just like the slightly cheaper Coolpix S52. But the S600VR delivers slightly more resolution (10MP vs 9MP) and higher factor zoom (4X vs 3X). It also features a wider, brighter lens, which should help improve image capture.

Image quality was good but not noticeably better than the S52. It wasn't a whole heap better than the Canon Digital IXUS 80 IS either. Capturing at ISO 3200 sounds impressive, but at that speed the biggest issue is image noise because the sensor has to work on a minimum of light captured.

PC User says: Reasonably good camera but low-light photo capture could be better.

**SAMSUNG NV24HD**PRICE \$500 / CONTACT SAMSUNG / PHONE 1300 369 600 / WEB www.samsung.com.au

This model isn't cheap, but it's also an HD movie camera. The NV24HD features a 10.1MP image sensor with a 3.6X optical zoom, however its most unusual feature is its ability to capture 1,280 x 720-pixel video at 30fps in H.264 format, so you'll get excellent quality and good running time for your storage, which is cheap Secure Digital format. You can also use the optical zoom during image capture. Just as impressive is its HDMI

interface so you can plug the camera straight into your HDTV. Add optical and digital image stabilisation and there's little excuse not to take great photos. It can get a little muddled in difficult lighting conditions but colour accuracy on the whole was good. Auto macro down to 5cm means you don't have to think about settings for ultra-close up shots.

PC User says: Some great features but needs to handle low lighting better.

**SAMSUNG NV4**PRICE \$400 / CONTACT SAMSUNG / PHONE 1300 369 600 / WEB www.samsung.com.au

The NV4 aims to offer a midway solution between the i8 and the NV24HD but doesn't really do much over the i8. Many of its specs are the same, from its 8MP image sensor and 3X optical zoom to its unusual near-SVGA (800 x 592-pixel) video capture mode. The problem with the video capture is it can only be done at 20fps. For faster capture, you have to drop down to 640 x 480 pixels like almost everyone else. The one difference is

the MPEG-4 compression, which is a definite plus. Image quality is passable, however, the NV4 is just a bit pricey compared with what else is on offer. Like the i8 and the NV24HD, the NV4 tries to be a 'jack of all trades' with its MP3 audio/MPEG-4 video playback. It's an interesting concept but you simply end up with compromises all round.

PC User says: Isn't sufficiently different to the i8 to justify the extra cost.

**SONY CYBER-SHOT DSC-H10**PRICE \$400 / CONTACT SONY / PHONE 1300 137 669 / WEB www.sony.com.au

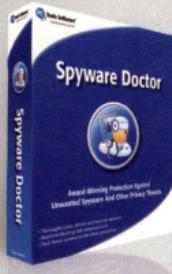
It's a sign of just how far the digital camera market has come when you can get a 10X optical zoom into an 'almost' compact camera — the DSC-H10 is a bit bigger than most, but it's hard to knock the features and price. It has an 8MP image sensor and 10X optical zoom and weighs less than 300g — all for under \$400. Image quality overall

wasn't bad and in bright light the images were remarkably clean even with JPEG compression. It uses MPEG-1 for movie capture; reasonably decent at 640 x 480 pixels and 30fps. No viewfinder here, instead there's a big 3in LCD screen.

PC User says: The DSC-H10 is definitely a sign of where the market is heading.



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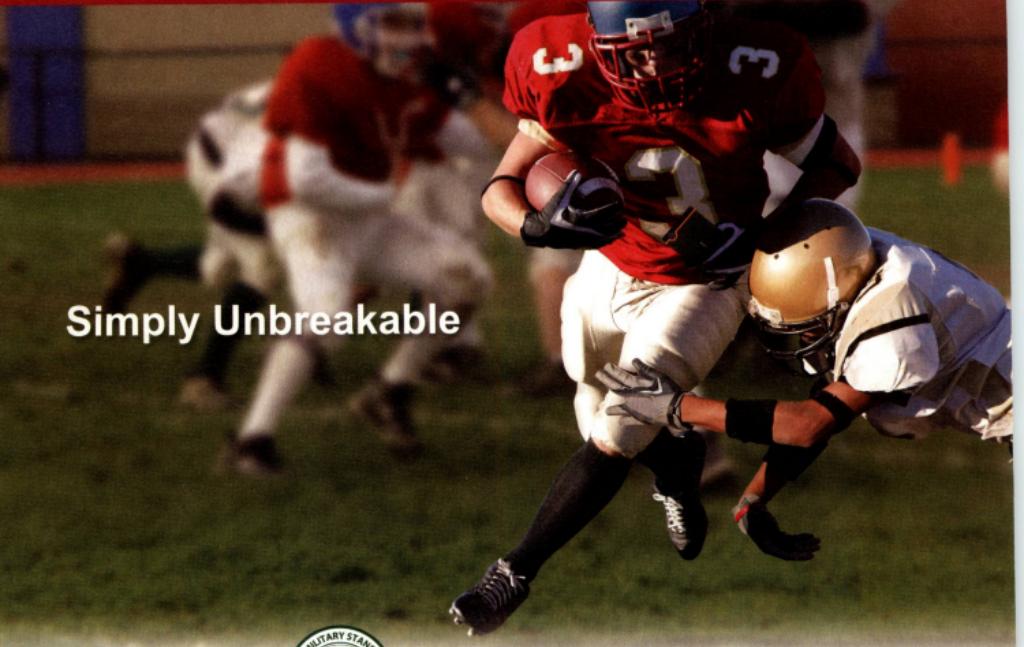


PC WORLD
EDITORS' CHOICE



DIGITAL STILL CAMERAS: HOW THEY COMPARE

Model	Canon Digital IXUS 80 IS	Canon Digital IXUS 860 IS	Canon Digital IXUS 970 IS	Fujifilm FinePix F100fd	Kodak EasyShare V1073	Nikon CoolPix L18	Nikon CoolPix S52	Nikon CoolPix S600 VR	Samsung i8	Samsung NV4	Samsung NV24HD	Sony Cyber-shot DSC-H10	Sony Cyber-shot DSC-W150
SPECIFICATIONS													
No. effective pixels (MP)	8	8	10	12	11.1	8	9	10	8.2	8.2	10.2	8.1	8.1
Optical Zoom	3X	3.8X	5X	5X	3X	3X	4X	4X	3X	3X	3.5X	10X	5X
Digital Zoom	N/A	4X	N/A	8.2X	5X	4X	4X	4X	5X	5X	5X	20X	10X
Maximum image resolution (pixels)	3,264 x 2,448	3,264 x 2,448	3,684 x 2,736	4,000 x 3,000	4,016 x 2,768	3,264 x 2,448	3,456 x 2,592	3,648 x 2,736	3,264 x 2,448	3,264 x 2,736	3,648 x 2,736	N/A	N/A
CCD size (inches)	0.40	0.40	0.43	0.62	0.61	N/A	0.40	N/A	0.4	0.4	0.43	0.4	0.4
Optical Image Stabiliser	Optical lens shift	Optical lens shift	None	Image sensor shift	Optical lens shift	Anti-shake (not optical)	Optical lens shift	Optical lens shift	Digital stabilisation (not optical)	Digital stabilisation (not optical)	Optical & digital stabilisation	Optical (Super SteadyShot)	Optical (Super SteadyShot)
Best image format	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG
Fastest shutter speed (secs)	1/1,500th	1/1,600th	1/1,600th	1/1,500th	1/1,164th	N/A	N/A	N/A	1/2,000th	1/2,000th	1/2,000th	1/2,000th	1/1,600th
Maximum ISO speed	1,600	1,600	1,600	12,800	8,000	1,600	2,000	3,200	3,200	3,200	3,200	3,200	3,200
Focus method	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto
Focus range, normal	30cm-inf.	3cm-inf.	50cm-inf.	45cm-inf.	60cm-inf.	45cm-inf.	30cm-inf.	50cm-inf.	80cm-inf.	80cm-inf.	40cm-inf.	50cm-inf.	50cm-inf.
Focus range, macro	30-50cm	3cm	2-50cm	5-80cm	13cm-70cm	15-45cm	4-30cm	3-50cm	5-80cm	5-80cm	5-40cm	2cm-inf.	10cm-inf.
Focal length (mm)	6.2-18.6	4.6-17.3	6.6-33.0	6.4-32.0	N/A	N/A	6.3-18.9	N/A	6.3-18.9	6.3-18.9	4.3-15.5	6.3-63.0	5.0-25.0
Equivalent 35mm focal length (mm)	38-114	28-105	37-185	28-140	37-111	N/A	N/A	N/A	38-114	38-114	24-86.5	38-380	30-150
Movie mode format	AVI (MJPEG)	AVI (MJPEG)	AVI (MJPEG)	AVI	MPEG4	AVI	AVI	AVI	MPEG4	MPEG4	H.264	MPEG1	MPEG1
Maximum frame rate (fps)	30	30	N/A	25	30	N/A	N/A	N/A	30	30	30	30	30
Frame size at max. frame rate (pixels)	640 x 480	640 x 480	N/A	640 x 480	1280 x 720	N/A	N/A	N/A	640 x 480	640 x 480	1280 x 720	640 x 480	640 x 480
Maximum recording time (secs)	Limit of card	4GB or 1hr	N/A	Limit of card	29mins	N/A	N/A	N/A	2hrs	4GB	Limit of card	Limit of card	Limit of card
LCD screen size (inches)	2.5	3.0	2.5	2.7	3.0	3.0	3.0	2.7	2.5	2.5	2.5	3.0	2.7
Viewfinder	No	No	No	Yes	No	Yes	No	No	No	None	None	None	Yes
Built-in flash	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flash hot-shoe	No	No	No	No	No	No	No	No	No	No	No	No	No
STORAGE													
Built-in memory capacity	None	None	None	57MB	32MB	21MB	38MB	45MB	190MB	34MB	20MB	31MB	15MB
Flash memory type	Secure Digital (SD)	Secure Digital (SD)	Secure Digital (SD)	xD-Picture & SD/SDHC	SD/SDHC	Secure Digital (SD)	Secure Digital (SD)	SD/SDHC (up to 4GB)	SD/SDHC (up to 4GB)	SD/SDHC (up to 8GB)	Memory Stick Pro Duo	MemoryStick Pro Duo	
Capacity supplied	32MB	32MB	32MB	None	None	None	None	None	None	None	None	None	None
POWER													
Battery type	Proprietary Li-Ion	Proprietary Li-Ion	Proprietary Li-Ion	Proprietary Li-Ion	Proprietary Li-Ion	2 x AA-size NiMH	Proprietary Li-Ion	Proprietary Li-Ion	Proprietary Li-Ion	Proprietary Li-Ion	Proprietary Li-Ion	Proprietary Li-Ion	Proprietary Li-Ion
Supplied	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shots per charge	N/A	N/A	580 (LCD off)	N/A	N/A	650	200	190	N/A	N/A	N/A	310	400
CONNECTION													
PC connection type	USB	USB	USB	USB	USB	USB	USB	USB	USB	USB	USB	USB	USB
Dimensions (W x H x D) (in mm)	87 x 55 x 22	93 x 59 x 26	96 x 57 x 27	98 x 59 x 24	94 x 58 x 21	95 x 61 x 30	93 x 59 x 21	89 x 53 x 23	91 x 58 x 20	95 x 57 x 18	98 x 61 x 19	106 x 69 x 49	94 x 60 x 22
Weight (grams)	125	155	160	170	148	125	125	130	116	140	146	264	142
IMAGE QUALITY (out of 10)	8	8	7.5	8	7.5	7.5	7.5	7	7	8	7	6.5	7



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Multimedia mobiles

David Flynn makes sweet music with the latest mobile phones.

Our massive round-up this month proved to us that the ability to play music is now truly mainstream in the mobile phone market. Many phones use Windows Media Player and some even iTunes (including the latest BlackBerrys and Apple iPhones) to load and synchronise music from a PC-based collection, while many have player software that supports playlists. For a few hundred dollars you can get a superb music mobile phone that'll help you while away the daily commute on the bus or train, or stave off boredom during your morning jog.

Video remains a challenge. With no common format for phones, most content you download needs to be converted (try using PC User RockPod 2009 from this month's cover disc).

For digital cameras, 2 megapixels (MP) is the norm and anything less isn't very useful. But some camera phones are getting serious. There are models that feature 5MP cameras with compelling features such as autofocus, face detection, multiple scene modes and brilliant xenon flashes.

BUDGET PHONES

NOKIA 5220 XPRESSMUSIC

PRICE \$225 / CONTACT NOKIA / PHONE (02) 9429 9000 / WEB www.nokia.com.au

Nokia's most musically-minded handsets carry the XpressMusic brand, and the latest models are designed to work with the online Nokia Music Store — an iTunes-like service for buying and downloading (or sideloading, via your PC and a USB cable) music. This alone ensures these phones excel in the music department, and Nokia has wisely set the spec

to include a 3.5mm headphone socket, FM radio and a microSD memory card slot. In addition, the 5220 sports dedicated music controls (play/pause, forward and reverse) on the edge of its almost impossibly thin chassis. We're amazed that so few 'music phones' have adopted this convention. Toss in LED lighting that flashes to the beat of the

music and you've got one funky handset. The 2MP camera with flash is almost a mandatory inclusion.

PC User says: For the price, this is one of the most desirable music mobiles on the market.



90%



Tech terms

GSM. The standard mobile phone network used in Australia and in most countries around the world.

3G. 'Third generation' phone networks, which include Telstra's 'Next G' network.

HSDPA. (High-Speed Downlink Packet Access) is a technology used on 3G networks to boost the

download speed to 1.8Mbps, 3.6Mbps or 7.2Mbps (respectively known as HSDPA 1.8, 3.6 or 7.2).

Memory Stick Micro. Also known as M2, this is a memory card format created by Sony and used mainly in Sony Ericsson mobiles.

microSD. A thumbnail-sized version of the popular digital camera SD

card format designed for mobile phones (microSDHC is a higher-capacity version of the microSD card format with faster transfer speeds).

Sideloading. The process of loading music and videos directly from your PC over a USB cable rather than synchronising the phone with

your PC's media player software.

Haptics. The use of a short vibration burst to provide feedback for a touchscreen control.

Transcoding. Converting a downloaded or DVD-ripped video file to a specific format and size supported by a particular device.



MOTOROLA ROKR E8

PRICE \$400

CONTACT MOTOROLA AUSTRALIA

PHONE 1300 138 823

WEB www.motorola.com.au

Touchscreen interfaces have obvious appeal on multifunction devices such as the modern mobile phone, and Motorola's ROKR E8 is just one more example of how designers are innovating around the basic concept. In this instance, a 'virtual keypad' on the dimpled membrane surface of this shiny black technoslab transforms to reveal the keys needed for the operation at hand. Tap the music icon on the home screen and all you see are music controls, including shuffle and repeat.

These are coupled with a horseshoe-shaped scroll wheel to scoot through track listings. Load up as many tracks as you want into the 2GB memory, drop in a microSD memory card for an instant capacity boost, transfer tracks through Windows Media Player, plug your favourite headphones into the 3.5mm socket — it's pretty clear that Motorola crafted the E8 with music in mind.

PC User says: If you don't need 3G or greater than a 2MP camera, rock on!



NOKIA 6220 CLASSIC

PRICE \$500

CONTACT NOKIA

PHONE 1800 434 357

WEB www.nokia.com.au

Although it was one of the very first 5MP cameraphones, the year-old Viewty is now facing stiff competition from several manufacturers. It's still got a top quality camera, and the good news is that the Viewty now sells for almost half its original sticker price, so you can land an excellent cameraphone and still stay within your budget. The music features are up to par but won't shame your iPod, although we like that the Viewty plays DivX 5.0 videos (other formats require transcoding). Slide in a microSD card, add the cumbersome adapter for your 3.5mm headphones, and you're good to go. But the Viewty is all about the camera, to the point where it looks like a compact point-and-shoot digital snapper — one side sports a large touch-sensitive display, the other has the autofocus lens and bright xenon flash, and inside is an image stabiliser, plus plenty of controls and settings let you capture night shots and action.

PC User says: Music and video are adequate, but the camera's a winner for the price.



NOKIA 6220 CLASSIC

PRICE \$500

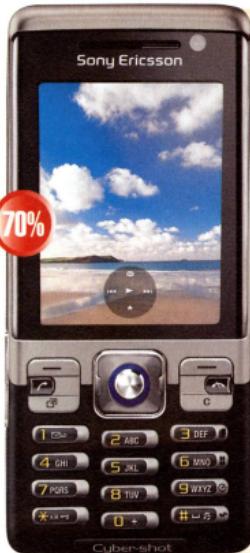
CONTACT NOKIA

PHONE [02] 9429 9000

WEB www.nokia.com.au

Like so many mobiles, and Nokia in particular (due no doubt to their popularity in this highly competitive market), the 6220 Classic can be landed for much less than its sticker price — in this case, \$500 on the street (or online) compared to \$689 RRP. This makes it superb value for a 5MP, 3G cameraphone with GPS. The camera is assisted by Carl Zeiss glass and a xenon flash, and delivers sharp and colour-true results which can be uploaded to Nokia's free Ovi photo-sharing site. But let's face it: this isn't a phone you'd buy mainly for the music player, which is adequate but nothing to text home about. Nor does it boast stand-out 'look at me' styling. True to its name, the design is a 'classic' Nokia shell, although the screen is certainly a stunner on which to show off your shots. Other inclusions are an FM radio and microSDHC memory card slot.

PC User says: There are better Nokia music phones, but they don't have this great little camera on their side.



SONY ERICSSON C702

PRICE \$450

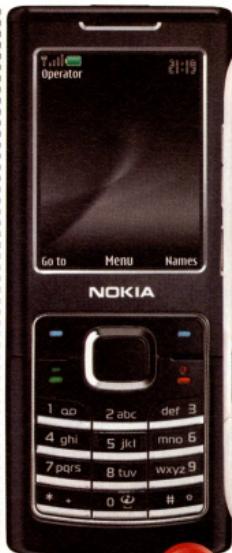
CONTACT SONY ERICSSON

PHONE 1300 650 050

WEB www.sonyericsson.com.au

Considering this comes from Sony Ericsson's Cyber-shot line, the C702 overwhelms as a cameraphone. We expected sharper and cleaner results from the 3.2MP lens, along with better autofocus control, although the photo light makes a meal of snaps in low light conditions. Yet the C702 isn't all about being a cameraphone. Instead, it's a semi-ruggedised mobile clad in an odd combination of black non-slip rubber and silvered plastic. The chassis is rated for protection against dust and the odd splash of water, but this is less about being a business phone for tradies than one for fans of surf, sun and extreme sports. That audience may expect a little more from the C702's average music capabilities, which are hampered by a proprietary headphone jack and the lack of an adapter. The GPS receiver comes in handy for geotagging your snaps.

PC User says: Could suit those people looking for an 'outdoorsy' phone.



NOKIA 6500 CLASSIC

PRICE \$350

CONTACT NOKIA

PHONE (02) 9429 9000

WEB www.nokia.com.au

It's not the best music phone, the camera's not a showstopper, but the 6500 Classic made it into our roundup because it's a prime example of a phone that's 'good enough' once you take other attributes into account. Most noticeable of those traits is a head-turning style that'll make this an instant hit with most fashion-minded folks. The strong metal-framed chassis, sleek design and impossibly thin profile (it'll barely make a bulge in your jeans) almost seal the deal before you get to its multimedia capabilities. Those are quite average: the MP3 player works fine, but with no memory card slot you're limited to 1GB of inbuilt memory, which is no more than a \$65 iPod Shuffle. There's not even an FM radio for when you want a little variety. The 2MP camera is sufficient for happy snaps alone. But maybe that's all you need...

PC User says: Proof that even a budget phone can deliver basic music and photo capabilities with style to spare.



PALM CENTRO

PRICE \$299

CONTACT PALM

PHONE (02) 9844 5420

WEB www.palm.com.au

This funky fresh-faced handset is intended for young mainstream users looking for their first smartphone, although it could also attract many Palm OS loyalists. The price is certainly right, and the wealth of third-party Palm software will make up for most features the Centro itself is missing, such as decent video playback. The 1.3MP flashless camera is for MMS and Facebook only, and you can almost forget about the web browser. But the bundled Pocket Tunes music player is a doddle to use, with support for DIY playlists. Combined with a microSD memory card slot the Centro becomes a decent music-minded mobile phone for those who also want a bit of mobile email and instant messaging thrown in (as long as you don't mind the small cramped keypad). The Centro is available only through Telstra — you'll have to shell out a \$100 unlocking fee to use it on any other carrier's GSM network.

PC User says: A decent bundle if you're on a budget and don't mind a few compromises.



SONY ERICSSON W380

PRICE \$200

CONTACT SONY ERICSSON

PHONE 1300 650 050

WEB www.sonyericsson.com.au

Here's another good example of street prices turning a decent phone into dazzling value: Sony Ericsson's RRP of \$499 plummets to \$200 in the real world, according to price search engine www.staticice.com.au. The W380 has a clamshell or 'flip' design which uses an external display to show the number of incoming calls or details of the current MP3 track. This screen is in fact 'camouflaged' to appear like it's just part of the grape-coloured shell when it's not in use. There's also a small set of touch-sensitive music controls on the outer shell so you can skip or stop the music without opening the phone and calling up the necessary menu. The music player software is typically intuitive, with an M2 memory card slot annoyingly buried under the battery cover. Just don't expect anything more than basic MMS-grade snaps from the 1.3MP camera.

PC User says: A bargain if you want a music phone that looks a little different.



LG KF510

PRICE \$275

CONTACT LG

PHONE 1800 434 357

WEB www.lge.com.au

It could be a little simplistic to think of the KF510 as the LG 'Secret' on a shoestring, but that appears to be what the Korean colossus has in mind for this slim slider. Like the Secret it's got touch controls, a tempered glass screen surmounting a shiny but solid chassis, and surfaces that lay out the welcome mat for fingerprints. The phone's appeal is more in the disco-style navigation and lighting of the keypad with its accompanying subtle haptic feedback. The MP3 player is sufficient for the task, but with a laughable 16MB of onboard memory, a high-capacity microSD card is a must-have. However, the 3MP camera is a surprise at this price, and does well enough when there's ample light around. But for the money, we'd suggest Nokia's 5220 XpressMusic is a better buy in almost every department.

PC User says: An entry-level phone with a good dash of style but short on music appeal.

65%

HIGH-END PHONES

APPLE iPhone

PRICE APPROX \$800 FOR 16GB, OUTRIGHT

CONTACT APPLE / **PHONE** 13 36 22 / **WEB** www.apple.com.au

There's no denying that the iPhone is a multimedia mobile *par excellence*. After all, it's essentially an iPod Touch married to a 3G phone. So while the 2MP camera is a bit of a let-down, and the lack of MMS capability is a lazy oversight, you simply can't do better if you want a mobile phone to keep you entertained when you're not taking and making calls. In addition to music, TV shows and podcasts downloaded through the iTunes Store, there are also hundreds of applications (many free and more up to \$10 each) for your iPhone. However you'll need to invest in third-party software (or use RockPod 2009) to convert

videos into an iTunes-friendly format to load onto your iPhone. There's also no memory card slot for more storage, although if you get the 16GB model, that may not be an issue.

PC User says:

While not without its flaws as a phone, it's unparalleled as an iPod.

90%

PC USER
BEST BUY



BLACKBERRY BOLD

PRICE \$850

CONTACT RIM

PHONE N/A

WEB www.blackberry.com

RIM pulled out all the stops with the Bold. As a mobile phone it gets 3G, GPS and Wi-Fi, plus support for HTML email (a first for any BlackBerry) and a better browser. The screen is a super-sharp 2.6in panel running at half VGA (480 x 320) resolution. A microSDHC slot supplements the 1GB of onboard memory, and even the 2MP camera is one of the best we've seen. The BlackBerry Media Sync software works a treat with iTunes for Windows, importing playlists and album art on any non-DRM tracks. You can also create your own playlists on the fly. The large, sharp screen is perfectly suited to video playback of AVI, MPEG-4, WMV and even Xvid clips, although DivX support is limited to the older version 4 codec rather than the more recent DivX 5 and 6 releases.

PC User says: A superior iPhone alternative for the serious mobile professional.



85%

LG SECRET**PRICE** \$650**CONTACT** LG**PHONE** 1800 434 357**WEB** www.lge.com.au

To snare the high spenders, LG prefers to play the style card rather than trumpet raw tech features. The Secret is its new glamour phone, made to turn heads. Happily, despite the attention paid to the phone's looks, there was also some effort devoted to features. Once you get past the swanky touch navigation with its blue neon ripples, there's actually some cool tech hidden on the phone. The 5MP camera appears to be identical to the excellent snapper of the Viewty, and it's laden with options for fine-tuning your pics both before and after you hit the shutter. A 'Touch Media' menu provides fast access to all the phone's multimedia features (including the photo gallery and FM radio) plus touch controls for music and video playback, both of which work with Windows Media Player. Make sure you toss a microSD card into the slot though, because internal memory is a mere 100MB.

PC User says: While it's no iPhone, the Secret's beauty is certainly more than skin deep.



85%

SONY ERICSSON C902**PRICE** \$550**CONTACT** SONY ERICSSON**PHONE** 1300 650 050**WEB** www.sonyericsson.com.au

Perhaps unlike its C702 sibling, this phone undoubtedly deserves the Cyber-shot brand. The 5MP lens, which hides out of harm's way behind the sliding rear cover, is the slimmest and snazziest member of the family. And as you'd expect, it's got the works: multiple autofocus modes including macro and face detection, several 'scene' modes, image stabilisation, and a combo flash and photo light (which in the latter mode enhances video capture). The C902 brings these all together to deliver images of superb clarity, lifelike tones and rich contrast. Multimedia capabilities are fleshed out by the same solid player software as Sony Ericsson's Walkman phones, but with the same drawbacks of a proprietary headphone socket (albeit with a 3.5mm adapter) and the need to load your content onto an M2 memory stick. But you'll appreciate the 3G HSDPA speeds and inclusions like the FM tuner.

PC User says: If you're a fan of Sony Ericsson, this is the camera phone to beat.



80%

i-MATE ULTIMATE 9502**PRICE** \$1,000**CONTACT** i-MATE**PHONE** 1300 850 513**WEB** www.i-mate.com

Like the HTC Touch Diamond, the Ultimate 9502 is exclusive to Telstra's Next G network, although i-mate has resisted the temptation to encase the Windows Mobile 6.1 OS in any fancy, friendly shell. Instead, they've presented it as a souped-up smartphone for the business professional. So in addition to the standard features such as seamless sync with music and video on your Windows XP or Vista PC, you get creature comforts such as a large 2.8in VGA touchscreen with external video output, Wi-Fi, GPS and a meaty 400MHz processor to zip through applications. If only i-mate didn't opt for a 2.5mm audio jack. The 3MP camera does the job well enough, with a decent autofocus. The device is a bit of a beast compared to the iPhone or Touch Diamond, but the extra bulk allows for a larger than normal battery for extended life between recharges.

PC User says: A solid mobile workhorse, but perhaps with more capabilities than the average user will need.



N95 8GB

Nokia Music Store - Maroon 5
RecommendationsMaroon 5
This Love [Radio...]
Genre: Rock
Tracks: 1

All Albums All Singles

It Won't Be Soon...
Tracks: 15Songs About Jane
Tracks: 12

Options

NOKIA

NOKIA N95 8GB**PRICE** \$1,000**CONTACT** NOKIA**PHONE** (02) 9429 9000**WEB** www.nokia.com.au

Nokia's N95 has long been the Finnish company's flagship 'multimedia computer' (they don't consider it a mere mobile phone) and this update keeps that flag flying high with the namesake 8GB flash drive (although there's no memory card slot), lush 2.8in screen and 5MP camera. It's supported by the new Nokia Music Store, which works with Windows Media Player 11, while Nokia's own video manager software (and several third-party programs) helps transcode and transfer videos to the handset. The 3.5mm headphone jack is a nod to serious music fans. The camera packs in features such as close-up and rapid-fire shooting modes, a self-timer and a flash with red-eye reduction. Throw in Wi-Fi and GPS and you can see why this remains a favourite among the gadgeteers. However that extensive roster makes this phone quite a handful in size and a little pricey.

PC User says: It's a lot of phone but for a lot of money, especially given this is only GSM rather than 3G.

Buyer's checklist

* **Memory card.** Don't get too worked up if you need to buy a memory card for your phone because it's short on built-in memory. You can get a brand-name 4GB microSD card for around \$25. However, if you're working the dealer down to

match another store's price, ask for the card to be included in order to seal the deal.

* **3.5mm audio jack.** Phones fitted with this standard audio socket let you hook up your favourite headphones, including noise-cancelling models. 2.5mm

connectors will require a clumsy and easy-to-lose adapter, while proprietary connectors lock you into the phone's own earbuds (which are rarely impressive).

* **Video formats.** No phone supports all the popular video formats, so be prepared to track

down (and perhaps pay for) software to convert or 'transcode' your movies and TV shows into a format your phone can play. The alternative is to use PC User's own RockPod 2009 to convert video for use on your phone. You'll find RockPod on the cover DVD.

HIGH-END PHONES: HOW THEY COMPARE

	Apple iPhone	BlackBerry Bold	BlackBerry Pearl	HTC Touch Diamond	i-mate Ultimate	LG Secret KF750	Nokia N95 8GB	Samsung U900	Sony Ericsson C902
Web	www.apple.com.au	www.blackberry.com	www.blackberry.com	www.htc.com/au	www.imate.com	www.lge.com.au	www.nokia.com.au	www.samsung.com.au	www.sonyericsson.com.au
Price (RRP)	Depends on contract	\$850	\$650	\$999	\$1,099	\$899	\$1,159	\$699	\$899
Price (street)	Depends on contract	\$850	\$575	\$950	\$1,000	\$650	\$1,000	\$550	\$550
Band	3G	3G	GSM	3G	3G	3G	3G	3G	3G
HSDPA	3.6	3.6	No	7.2	7.2	3.6	3.6	7.2	3.6
Wi-Fi	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
GPS	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No
FM radio	No	No	No	Yes	No	Yes	Yes	Yes	Yes
Camera	2MP	2MP	2MP	3.2MP	3MP	5MP	5MP	5MP	5MP
Memory (built-in)	8GB or 16GB	16GB	64MB	4GB	256MB	100MB	8GB	128MB	160MB
Expansion	No	microSD	microSD	No	microSD	microSD	microSD	microSD	M2
Screen	3.5in	2.6in	2.1in	2.8in	2.8in	2.4in	2.6in	2.2in	2in
Battery (talk, hrs)	10	5	4	5.5	4.5	4	6	6.5	9
Battery (standby, hrs)	300	310	360	280	180	260	280	400	400

BUDGET PHONES: HOW THEY COMPARE

	LG KF510	LG Viewty	Motorola ROKR E8	Nokia 5220 XpressMusic	Nokia 6220 Classic	Nokia 6500 Classic	Palm Centro	Sony Ericsson C702	Sony Ericsson W380
Web	www.lge.com.au	www.lge.com.au	www.motorola.com.au	www.nokia.com.au	www.nokia.com.au	www.nokia.com.au	www.palm.com.au	www.sonyericsson.com.au	www.sonyericsson.com.au
Price (RRP)	\$299	\$899	\$450	\$329	\$689	\$499	\$299	\$699	\$499
Price (street)	\$275	\$450	\$400	\$225	\$500	\$350	\$299	\$450	\$200
Band	GSM	3G	GSM	GSM	3G	3G	GSM	3G	GSM
HSDPA	No	3.6	No	No	3.6	No	No	3.6	No
Wi-Fi	No	No	No	No	No	No	No	No	No
GPS	No	No	No	No	Yes	No	No	Yes	No
FM radio	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Camera	3MP	5MP	2MP	2MP	5MP	2MP	1.3MP	3.2MP	1.3MP
Memory (built-in)	16MB	100MB	2GB	30MB	120MB	1GB	64MB	150MB	14MB
Expansion	microSD	microSD	microSD	microSD	microSD	No	microSD	M2	M2
Screen	2.2in	3.0in	2in	2in	2.2in	2in	2.2in	2.2in	1.9in
Battery (talk, hrs)	4	4	7.5	5.25	3.5	3.5	4	7	7
Battery (standby, hrs)	400	430	300	400	250	200	300	300	300

How we tested

To test music playback we loaded a series of albums, individual tracks and playlists onto the phone, ideally using phone-to-PC sync but sometimes with 'sideloading' via a USB cable or memory card. For video the process was often more cumbersome because of the need to convert clips into a specific format as well as a resolution for

optimal playback (bearing in mind the phone's limited hardware). Digital photography, on the other hand, tended to be a differentiator only at the top end of the market when you move past 2MP. As always, overall usability also played a part in our final ratings. There's no sense packing a phone with whiz-bang features if you have to struggle to use them.

Coming soon

As this issue of *PC User* went to print, a handful of other multimedia mobile phones were hovering on the horizon.

* Motorola will round out its ROKR family with the EM325 and EM330, both of which are due mid-October. The EM330 has a flip clamshell design with an external touch-sensitive display and an audio equaliser preset for a dozen music genres, while the EM325 is a slider in the mode of the E6 with a one-touch music key. Both have 3.5mm audio jacks and FM tuners with support for RDS4 to list the name of the artist and song played.

* Samsung's Omnia is an out-and-out iPhone wanna-be, down to the 3.2in widescreen touch display and choice of 8GB or 16GB flash drive, although the 5MP camera, microSD slot and optical 'mouse' directional

controller are new tricks to the mix.

* We're awaiting the debut of Nokia's rumoured 'Tube' touchscreen, which the pundits tip to land before Christmas.

* Sony Ericsson Xperia X1 is the company's first Windows Mobile smartphone. It has a widescreen 3in touch display, slide-out keyboard and a 3.5mm audio jack.

* Palm's 3G Treo Pro smartphone didn't make it in time for this feature, but we did manage to get it in and run some tests on it. The full review appears on page 101.

30%



SAMSUNG U900

PRICE \$550

CONTACT SAMSUNG

PHONE 1300 369 600

WEB www.samsung.com.au

Samsung's super-slim (13.5mm) yet sturdy 3G slider is aimed at the same fashionista market as LG's upmarket mobiles, albeit with an extra dose of tech temptations. But the 5MP camera is perhaps its best trait on the multimedia front, with a first-rate autofocus, bright LED flash for after-dark snaps, face detection and image stabiliser. All this is easily accessible through an 'adaptive touch' controller which swaps the conventional D-pad for a small touch-sensitive window that morphs into whatever function is required, so you get camera controls when snapping shots or music buttons for playing MP3s. These buttons appear even on the phone's standby screen, so you can control music without diving into the actual music player. Like all Samsung phones you're lumbered with a proprietary Samsung-only jack rather than a 3.5mm or even 2.5mm headphone socket.

PC User says: A surprising package for taking photos, enjoying music and dialling in style.

80%



SONY ERICSSON W760

PRICE \$600

CONTACT SONY ERICSSON

PHONE 1300 650 050

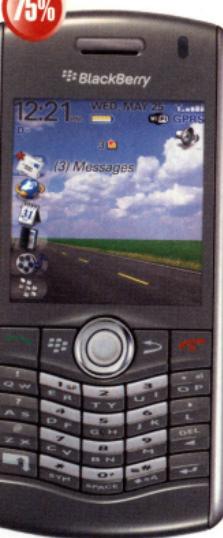
WEB www.sonyericsson.com.au

This is the first Walkman phone to be offered on Telstra's Next G network, so Next G customers can finally delight in some of the goodness that other 3G users have enjoyed for years. Beyond the slick slider design, top-notch build quality and snappy UI, the W760 sports the series' superb second-gen 'Walkman 2.0' music player software. This delivers all you'd want from any MP3 player including album art, sorting tracks by metadata (such as artist, album and genre), on-the-fly creation of playlists and surprisingly rich sound. The bundled-in ear headphones even come with three different sized caps for the right fit and an adapter that lets you plug your own 3.5mm cans into the non-standard jack. The 3.2MP camera is let down by the lack of flash and autofocus. For an extra \$18 per month you can also tune in to a limited range of content on the Foxtel Mobile service.

PC User says: This one's a pretty safe bet for anyone on the Next-G network.



75%



BLACKBERRY PEARL 8120

PRICE \$575

CONTACT RIM

PHONE N/A

WEB www.blackberry.com

The BlackBerry is best known as a business smartphone with strong mobile email capabilities, but recent releases have upped the ante in the more consumer-minded multimedia stakes. The Pearl family combines solid email functionality with music and video playback, although make sure you get the Pearl 8110 or 8120 models, not the \$100 cheaper Pearl 8100. The later models have an external microSD slot and noticeably faster USB-based sideloading of content, an adequate 2MP camera and with your choice of GPS (in the 8110) or Wi-Fi (the 8120). The music software isn't a standout but it's sufficient to while away the hours, and you can sync it with your iTunes for Windows library. The 3.5mm audio jack also wins points. Bundled software converts video clips into BlackBerry-friendly format, but like most small-screen mobiles you'd best stick to video podcasts.

PC User says: Solid email and satisfactory entertainment on a budget.



HTC TOUCH DIAMOND

PRICE \$950

CONTACT HTC AUSTRALIA

PHONE 1300 769 669

WEB www.htc.com.au

If only HTC's top-shelf Touch worked as good as it looks. It's a real head-turner, especially with the large 2.8in VGA screen and a snazzy TouchFLO 3D interface sitting atop its Windows Mobile 6.1 core. But this bolt-on approach contributes to excessive overhead, which often translates into rather sluggish operation and disappointing hiccups such as an FM radio which sometimes 'crashed'. Yet as a multimedia device, there are a few critical oversights. With no memory card support you're limited to the inbuilt 4GB of flash storage for all your music and video content. And there's no 3.5mm audio jack — it's a combo USB port, and one oddly located at the bottom of the phone. More welcome surprises include the Opera Mobile browser as an alternative to Internet Explorer, and a dedicated YouTube Mobile player which works a treat over Wi-Fi or Telstra's Next-G network (Telstra is the exclusive carrier).

PC User says: A 'rough diamond' that needs some polishing before it can truly shine.

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PC USER AUSTRALIAN

iPods vs the rest

Looking for quality and value rather than a brand name? Using our exclusive benchmarks, **Darren Yates** tests 20 of the latest portable media players, including the latest iPod Nano and Touch.

When it comes to portable media players, Apple basically all but owns the market. Its popularity has seen competitors try to imitate its styling but few actually match the iPod range. One problem with several iPod competitors is video playback — they claim to support video but too many require encoding to proprietary formats or can't play back full frame-rate video.

Don't get us wrong — the iPod range isn't perfect. We don't like the way Apple forces us to use its iTunes software or the lack of popular features found in other players, such as voice recording and an FM receiver. Then there's our long-term bugbear: there's no way for consumers to remove and replace the Lilion battery — the iPod has to be sent to Apple for a new battery, at a considerable cost. Mind you, Apple is no longer alone in that regard. Whereas in previous years some players made it easy to replace the battery, in this roundup none of the players' batteries

PDAs — the original 'Touch'

While the world might be going nuts over the iPod Touch, it certainly wasn't the first portable media device with a touchscreen. That honour actually belongs to the PDA (personal digital assistant). Based on Windows CE (and later Windows Mobile), these PDAs have been able to play back music and videos since around 2001, with battery life comparable to the iPod Touch itself.

HP's recent iPAQ PDAs in particular offer sleek dimensions and the ability to play back most audio and video codecs through the freeware player TCPMP. So while PDAs are not often considered a choice for portable media players, their larger screens, greater codec support and touchscreen features actually make them better options than many of the media players we tested in this roundup.

were removable. Realistically, most of these players will only last for as long as the internal battery will take a charge.

However, one thing we can't complain about is value. With prices still dropping and storage increasing, there are some great-value players available, including some that don't sport the Apple brand.

Of course, there's more to a good player than price and storage, and after putting 20 players through Australia's toughest testing regime, we reveal the players with the best audio and video quality.

AUDIO-ONLY PLAYERS

SANDISK SANSA CLIP

PRICE \$99 (4GB) / **CONTACT** SANDISK
PHONE 1800 793 652 / **WEB** www.sandisk.com.au

If there's one vendor trying to take it to Apple at the moment in the player market, it's Sandisk. It's not one of the bigger names but it's delivering plenty of value. The Sansa Clip is the latest version of its portable non-video player and although it's slightly bulkier than the iPod Shuffle or Zen Stone Plus, that extra space allows for an extra-large battery, rated for up to 15 hours of playback — not too bad in this group. Audio quality however is impressive with THD at 1kHz of just 0.015% and an A-weighted SNR of 98.4dB — in this



90%



roundup, those results are excellent. With a built-in FM receiver and voice recording abilities, it delivers far more value than any other player in this group. It works happily with Windows Explorer and with its \$99 price tag for 4GB of storage, you're not going to go too far wrong choosing this little player.

PC User says: FM receiver, excellent audio quality and 4GB of storage for \$99. That'll do us.

Buyer's checklist

- If you're buying a portable media player for the first time, here are a few things we recommend you look for:
- * **Video codec support.** If video playback is important, make sure it supports standard formats such as MPEG-4 or H.264 and doesn't require its own proprietary format.
- * **Audio codec.** Make sure the player handles the audio codecs you want to use — MP3 and WMA are very common

although iPods don't support WMA.

- * **Battery life.** The better players will give you at least 24 hours of audio playback and six hours of video playback per charge.
- * **Storage.** Compare players for storage capacity. Not all models offer great value.
- * **Interface.** Check how easy it is to navigate through the menus and dial up the features you want. If the player is hard to use, you'll get sick of it pretty quickly.

SONY NWZ-B135F

PRICE \$69 [2GB] / CONTACT SONY / PHONE 1300 137 669 / WEB www.sony.com.au

On the surface, the NWZ-B135F looks like most other USB flash stick style audio players, and at \$69 for 2GB of storage, it's actually better value than an iPod Shuffle. However, the B135F has one unique feature and that's its rapid charge. Plug it into your PC's USB slot for three minutes and the player's internal Lithion battery will have recharged enough to give you 90 minutes of

music, which sounds astonishing, although we'd like to see what sort of load this is putting on the USB port. The battery is rated for 16 hours playback. As for audio quality, it's passable with 0.05% THD at 1kHz and 90.8dB A-weighted SNR. The player comes with a built-in microphone and an FM receiver you can record from as well. It supports a decent array of audio codecs including WAV, but in a

rare loss for the company, ATRAC3, Sony's own compression format appears to have fallen off its perch and is no longer supported.

PC User says: Three minutes charge here gives 90 minutes of music with decent audio quality.



CREATIVE ZEN STONE PLUS

PRICE \$80 [2GB] / CONTACT CREATIVE / PHONE [02] 9021 9800 / WEB www.australia.creative.com

Just how small can you make an audio player with a built-in speaker? The latest version of the Zen Stone Plus is your answer. With a tiny built-in speaker, you could lose this player on your desk (we did!). For the same storage as the iPod Shuffle, you pay \$10 less and you get the speaker plus an FM receiver as well.

Battery life not using the speaker is rated at an impressive 20 hours but the speaker is just

too small. You can improve the sound by cupping your hands around the player. This improves the lower frequency response by extending the airflow path between the front and back of the unit. It has reasonable sound quality with 0.08% THD and 97.5dB A-weighted SNR and its output will happily feed into your home audio amp.

PC User says: The smallest boombox ever.



CREATIVE MUVO T200

PRICE \$90 [4GB] / CONTACT CREATIVE / PHONE [02] 9021 9800 / WEB www.australia.creative.com

Creative's Muvo T200 is similar to Sony's B135F with its USB flash drive form factor. However, while the interface and function of the T200 is a little smoother than the Sony unit, battery life is nowhere near as good, with the T200 only capable of nine hours of audio at best, compared with the B135F's possible 16 hours of playback. The upside is that the T200 gives you

4GB for its \$90 price tag. Its audio quality is a little better than average with its THD at 1kHz measuring 0.051% and its A-weighted SNR at 98.2dB — it's one of the best results we tested. Unlike the Zen Stone Plus, there's no speaker in this one but you do get an FM receiver plus voice recording thrown in. At least with its built-in standard USB plug, you'll be able to use this one as

a 4GB storage stick once the internal battery no longer takes a charge.

PC User says: Good value for money on storage but poor overall battery life.



SAMSUNG YP-S2

PRICE \$49 [2GB] / CONTACT SAMSUNG / PHONE 1300 362 603 / WEB www.samsung.com.au

Samsung's new 'Pebble' is similar to the iPod Shuffle in that there's no screen at all and only a single blue LED to guide you to which of the various play modes you're using. The upside is that for a 2GB player, its \$49 price tag makes it quite a bit cheaper than the iPod Shuffle. Plus it has the benefit of being able to use Windows Explorer to transfer your music. It's not going to set the world alight with its

audio quality, particularly with an 83dB A-weighted SNR, although its 0.05% THD is a little better than the Zen Stone Plus. The battery life at 13 hours is typical for a player like this. If you're after a budget brand-name player that does nothing more than play music, this is about as cheap as they come.

PC User says: A simple cheap audio player

— nothing more, nothing less.



LASER MINIMATE MP3-2GA8

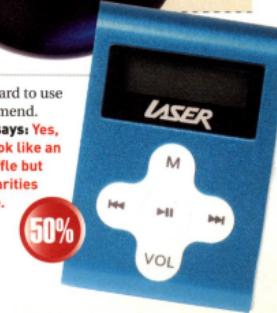
PRICE \$40 [2GB] / CONTACT LASER / PHONE [02] 9889 3388 / WEB www.laserco.com.au

Guess which player the Laser MiniMate most closely resembles. Unfortunately, it also shares the rather bizarre user interface of other Laser players which, among other unusual controls, uses left and right fast-forward and rewind keys to move up and down in menus. You also have to double-press just to get into the right mode to change the volume. Really, this is about the

worst user interface I've come across in any player. Unlike the iPod Shuffle, the MiniMate includes a tiny dot-matrix display that gives you basic stats on the storage. The 2GB player uses a traditional USB port for access and battery charging. Audio quality is surprisingly good with 0.013% THD at 1kHz and an SNR of 88.2dB. The one saving grace is that you can pick it up for under \$40 online, but it's

just too hard to use to recommend.

PC User says: Yes, it does look like an iPod Shuffle but the similarities end there.



_VIDEO AND AUDIO PLAYERS**SANDISK SANSVIEW**PRICE \$219 [8GB] / CONTACT SANDISK / PHONE 1800 793 652 / WEB www.sandisk.com.au

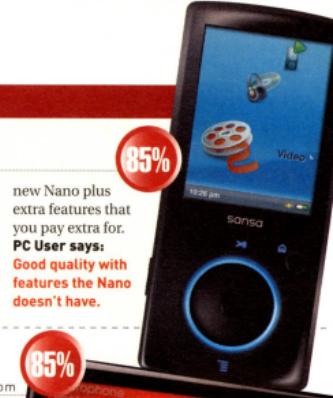
This is Sandisk's 'premium' video player, which to us means it's the one that plays full frame rate videos you can use other software to encode. It also has some good features the Nano can't match. First is the MicroSD/SDHC expansion slot, then the interface with the rotary scroll wheel that feels very first-gen

iPod. It works well and feels very comfortable. It has good codec support and can handle full 25fps MPEG-4 video. We used our RockPod 2009 software to create video clips that played back perfectly. Battery life is impressive with 35 hours of audio playback and up to seven for video. It also has a bigger screen than the

new Nano plus extra features that you pay extra for.

PC User says:
Good quality with features the Nano doesn't have.

85%

**CREATIVE ZEN**PRICE \$149 [4GB] / CONTACT CREATIVE / PHONE [02] 9021 9800 / WEB www.australia.creative.com

The Zen offers 4GB of storage, good codec support and comes with an SD/SDHC card expansion slot. Battery life is rated at 30 hours for audio and five for video, which is pretty much on par for the better players. Unlike the Zen Mosaic, this one supports full frame rate playback with excellent video codec support that includes WMV, DivX and Xvid (MPEG-4). Audio codec support is

equally good with MP3, WMA, WAV and AAC. The screen is the typical 320 x 240-pixel size. Unlike some players, the interface is quite intuitive to use and we had no trouble using our RockPod 2009 software to create MPEG-4 video clips that played flawlessly on it. Audio quality is also above average.

PC User says: Excellent codec support with expandable SDHC storage. Nice one.

85%

**SAMSUNG YP-P2**PRICE \$249 [4GB] / CONTACT SAMSUNG / PHONE 1300 362 603 / WEB www.samsung.com.au

Samsung is trying hard against Apple with its sleek and stylish players; none more so than the YP-P2. It's been around nearly a year and this widescreen player is as close as you can get to the iPod Touch without buying one. The large 3in widescreen LCD packs in the same resolution as a PSP, namely 480 x 272 pixels and unlike the YP-S3, this one supports WMV video playback as well as Samsung's

AVI-alternative format, SVI. Battery life is pretty decent — 35 hours for audio and five for video. Audio quality is average — a good THD at 1kHz of 0.022% but below-average 86.5dB A-weighted SNR. Unlike the Touch, this has voice recording and an FM receiver.

PC User says: Short on storage for your dollar, but that's offset by the high-resolution screen and other features.

80%

**SONY WALKMAN NWZ-A728**PRICE \$249 [8GB] / CONTACT SONY / PHONE 1300 137 669 / WEB www.sony.com.au

Its Walkman brand used to put fear into the competition but now this market has slipped from Sony's dominance. The A728 has the technical features if not quite the UI to give the iPod Shuffle a run for its money. Certainly, you can't knock its codec support (WMA, MP3, AAC and WAV for audio, MPEG-4 and H.264 for video) or its battery life, which at 36

hours for audio is 12 hours better than the Nano. Its 10 hours of video playback is better too. It plays nicely with Windows Explorer, making it easy to copy across your videos and music. The screen is 20% larger but has the same 320 x 240 pixels as the Nano. We used our RockPod 2009 software to create videos for it successfully. It's heavier than the new

Nano, with a larger battery for those great running times.

PC User says: Double the iPod video battery life but \$50 more than the Nano.

80%

**CREATIVE ZEN X-FI**PRICE \$249 [8GB] / CONTACT CREATIVE / PHONE [02] 9021 9800 / WEB www.australia.creative.com

The same price as the Sony A728 and Apple iPod and with the same 8GB of storage, the Zen X-Fi's claim to fame is its audio quality, although this wasn't reflected in our tests. A THD at 1kHz of 0.54% and an A-weighted SNR of 88.9dB wasn't up to Creative's usually high standards. The 2.5in LCD screen delivers just 320 x 240 pixels but handles an excellent array of codecs — WMV9, MPEG-4 SP, DivX,

Xvid and MJPEG for video and MP3, WMA, AAC or WAV for audio. You can expand the storage via the SD/SDHC slot, listen via the built-in speaker or through earphones. Battery life is a decent 36 hours for audio and five for video. With FM receiver and voice recording it looks good except for the price.

PC User says: Excellent codec support but not quite the audio quality we expected.

70%



LASER INTERMATE MP4-V970

PRICE \$199 [8GB] / CONTACT LASER / PHONE 02 9889 3388 / WEB www.laserco.com.au

The InterMate is easily the best of the three Laser players we tested and funny enough, the only one that doesn't imitate the Apple look. It also supports full 25fps MPEG-4 video playback and it doesn't look bad thanks to the larger-than-normal 400 x 240-pixel screen. We didn't like the tiny control buttons — they were difficult to operate. It also required two button-presses just to change the volume.

That said, audio quality was sensational with its THD at 1kHz just 0.008% and A-weighted SNR at 93.3dB, well above average. Best of all, the price is extremely competitive. The downside is you won't get more than four hours of video or 10 hours of audio playback at best.

PC User says: There's a lot to like about this player, except for the interface.



SAMSUNG YP-S3

PRICE \$149 [4GB] / CONTACT SAMSUNG / PHONE 1300 362 603 / WEB www.samsung.com.au

Samsung's new YP-S3 is priced neatly for a video capable player at \$149 (for the 4GB capacity model). However, you only get a mobile phone-sized 220 x 176-pixel colour screen. The other problem is that while it supports MPEG-4, you have to use Samsung's own SVI format, which effectively is the same as AVI but with

support for XviD video with zero B-frames and MP3 audio only. Audio quality is above average with THD @ 1kHz of 0.023% and an A-weighted SNR of 93dB. The interface is touch-style, similar to the iPod and reasonably easy to get used to. Despite the smaller-than-average screen, battery life is iPod Nano-like with 25 hours of audio and

five hours of video playback.

PC User says: Nice price but the small screen and proprietary file format take away the shine.



CREATIVE ZEN MOSAIC

PRICE \$99 [2GB] / CONTACT CREATIVE / PHONE 02 9021 9800 / WEB www.australia.creative.com

The Zen Mosaic aims to compete in the growing market of audio players with some video capability. However, like the Sandisk sansa Fuze, the Mosaic doesn't offer brilliant video playback, with its own proprietary software for video conversion to its sub-25fps video format. The problem with these proprietary-based solutions is that you end up paying money for video

functionality that isn't really useable in our book. The fact you only get a 2GB storage capacity for \$99 shows this. As an audio player though, it's not bad with a 32-hour playback from its internal battery and very decent audio quality with THD @ 1kHz of 0.015% and A-weighted SNR at 92.9dB. It also has an internal speaker, voice recording and FM receiver. But don't take

this as a serious video player.

PC User says: Ordinary video quality and screen resolution hold back an otherwise reasonable player.



SANDISK SANSZA FUZE

PRICE \$139 [4GB] / CONTACT SANDISK / PHONE 1800 793 652 / WEB www.sandisk.com

The Sansa Fuze has similar dimensions and styling to the previous-generation iPod Nano, but unfortunately for Sandisk, that's where the comparison ends. While the Nano has no trouble displaying full frame-rate 25fps video in either MPEG-4 or H.264 format, the Fuze can't handle anything beyond 20fps. What's more, you have to transcode all videos to its own proprietary format using the supplied

Sandisk software. It comes with 4GB of storage so its immediate competitor is the Creative Zen Mosaic, which sells at \$139 for the 4GB version but has similar issues. Audio quality is passable but with such limitations on the video, there are better options available.

PC User says: Nice price and storage, but the video playback is sub-standard.



LASER V-MATE MP4-Q12

PRICE \$90 [4GB] / CONTACT LASER / PHONE 02 9889 3388 / WEB www.laserco.com.au

Apart from the obvious physical resemblance, there's no way you'd win any kudos if you brought this one home for your kid's birthday. The screen is one of the worst I've seen, the display interface is clunky and difficult to follow and the control interface is nothing short of weird. In order to change the volume, you press the Vol button to activate volume-change, then use the left and right 'transport' buttons to move the volume up and down.

How is that logical? This is another player that uses a proprietary video format — you have to use Laser's software to create AMV video files. But even then, we found the video screen so poor in quality, we could barely make out what we were looking at. As an audio player, it does better with decent THD @ 1kHz of 0.013% and an 87.3dB A-weighted SNR but it's just not worth it in our view. **PC User says:** An iPod Nano, this ain't!

APPLE IPODS**APPLE IPOD CLASSIC**PRICE \$339 [120GB] / CONTACT APPLE / PHONE 13 36 22 / WEB www.apple.com.au

With the latest iPod releases, Apple has rationalised the options for the iPod Classic, removing the old 80GB and 160GB and replacing them with a 120GB at almost the same price as the 80GB. The Classic is the oldest but has consistently been the best iPod in terms of audio quality. We tested the old 80GB model the day before the new 120GB model was released and it continued to deliver the cleanest audio with THD at 1kHz of just 0.008%. The new 120GB model offers the same audio and codec support as the Nano and Touch and as the previous Classic model. The new model offers the same

battery life as the 160GB version with 36 hours music and six hours video playback per charge. The Classic LCD screen is larger than the new Nanos so while it's not quite as sleek, you're still going to get plenty of value and usability for your cash. It's the last of the hard drive-based handheld players on the market so if you're the audiophile type and want to store your music in uncompressed WAV format, this'd be the best choice.

PC User says: It doesn't have the latest features of the Nano or Touch but for bang for buck this is hard to beat.

**APPLE IPOD NANO 8GB**PRICE \$199 [8GB] / CONTACT APPLE / PHONE 13 36 22 / WEB www.apple.com.au

The new iPod Nano 4G delivers basically the same screen as the previous model but in a slimmer portrait-style form and prices that reflect the lower cost of storage. There are a number of usability improvements with the front screen now covered by optical-grade glass instead of plastic and the unit itself built from a single slab of aluminium. Unfortunately, video playback battery life has dropped from five hours to four. Audio battery time remains at 24 hours. For the visually impaired, the new iPod includes a 'spoken word' interface that works with

Windows Vista and Mac OS X Leopard. The other new feature is the accelerometer, the same as the one in the iPhone and iPod Touch. This allows you to access new features such as 'shake to shuffle' and auto screen flipping for watching videos for right or left-handed use. Video and audio codec support remains the same as the previous-generation Nano. Thankfully, the clipping distortion problem from the old-gen Nano has been fixed and audio quality is remarkably good.

PC User says: A bigger screen and lower price, but also lower video battery life.



90%

APPLE IPOD TOUCHPRICE \$549 [32GB] / CONTACT APPLE / PHONE 13 36 22 / WEB www.apple.com.au

The new iPod Touch is hardly distinguishable from the original model from the front, but with its curvaceous rear shell it has more in common with its iPhone cousin. The screen and interface remain the same, as does the video and audio codec support, however battery life is up from the previous generation to 36 hours for audio and six for video. And reflecting the lower costs of flash storage, the new 8GB is also cheaper than the original generation unit, priced at \$329, down from \$399. The 32GB model we tested comes in at \$549. The Touch's main strength is its

touchscreen interface, which is about as good an interface as you're ever going to see. It's likely to eventually consign the old clickwheel to history even on the Nano itself as touchscreen tech costs drop over time. However, that interface also means the Touch delivers the least value in terms of storage per dollar of all the iPods. But with its high-resolution 480 x 320-pixel screen, it's hard to go past it.

PC User says: Lower price and improved battery life makes the new Touch better value.



90%

APPLE IPOD SHUFFLEPRICE \$89 [2GB] / CONTACT APPLE / PHONE 13 36 22 / WEB www.apple.com.au

The clip-style iPod shuffle is about as light on features as you can get — apart from playing music it does little else. Apple has done little to refresh the Shuffle, except to offer more colours, and the new price is still a bit high. It struggles in comparison with most audio-only players we tested. The supplied cradle provides USB connectivity as well as charging

the built-in LiIon battery. Again, you must use iTunes and there's no display. The upside of having no screen is that the tiny battery manages a reasonable 12 hours playback. The audio quality won't set the world alight but no-one buys a Shuffle expecting that.

PC User says: Ultra-compact music-only player with average audio quality.

75%



PORTABLE AUDIO PLAYERS: HOW THEY COMPARE

Make and Model	Apple iPod Shuffle	Creative Muvo T200	Creative Zen Stone Plus	Laser MiniMate	Samsung YP-S2	Sandisk sansa clip	Sony Walkman NWZ-B135
Storage type	Internal Flash	Internal Flash	Internal Flash	Internal Flash	Internal Flash	Internal Flash	Internal Flash
Capacity	2GB	4GB	2GB	2GB	2GB	4GB	2GB
Storage expansion slot	No	No	No	No	No	No	No
FEATURES							
Screen and resolution (pixels)	None	Yes (data only)	Yes (data only)	Yes (data only)	None	Yes (data only)	Yes (data only)
FM radio	No	Yes	Yes	Yes	No	Yes	Yes
Line-in recording	No	No	No	No	No	No	No
Voice recording	No	Yes	No	No	No	Yes	Yes
Video playback	No	No	No	No	No	No	No
FM transmitter	No	No	No	No	No	No	No
Video output	No	No	No	No	No	No	No
Battery type	Internal Lithium-polymer	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion
Works with Windows Explorer	No	Yes	Yes	Yes	Yes	Yes	Yes
Operating systems supported	Windows, Mac OS	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP/2000	Windows Vista/XP	Windows Vista/XP
Size (height x width x depth, mm)	41 x 27 x 10	78 x 25 x 11	57 x 36 x 18	N/A	41 x 43 x 17	N/A	91 x 25 x 16
Weight (grams)	15.6	20.6	27	N/A	17.2	N/A	29
Rated battery life (audio/video, hours)	12/N/A	9/N/A	20/N/A	N/A	13/N/A	15/N/A	16/N/A
CODEC SUPPORT							
— MP3/WMA	Yes/No	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
— WAV/AAC	Yes/Yes	No/No	No/Yes	No/No	No/No	Yes/No	Yes/Yes
— OGG	No	No	No	No	Yes	No	No
— video codec	None	None	None	None	None	None	None
TEST RESULTS							
Clipping at maximum output	No	No	No	No	No	No	No
Maximum output signal (mV RMS)	710	640	662	506	358	497	319
THD at 50Hz (30kHz)	0.434%	0.093%	0.088%	0.048%	0.130%	0.01%	0.030%
THD at 1kHz (30kHz)	0.354%	0.051%	0.080%	0.013%	0.061%	0.015%	0.050%
THD at 15kHz (30kHz)	0.890%	0.042%	0.080%	0.014%	0.085%	0.026%	0.108%
THD at 50Hz (flat)	0.564%	0.313%	0.337%	0.057%	0.480%	0.666%	0.339%
THD at 1kHz (flat)	0.497%	0.376%	0.320%	0.033%	0.867%	0.671%	0.336%
THD at 15kHz (flat)	1.740%	0.516%	0.545%	0.038%	8.900%	0.690%	0.385%
SNR (-1dBFS at 1kHz) flat	46.5dB	50.9dB	51.1dB	68.1dB	47.9dB	58.9dB	50.1dB
SNR (-1dBFS at 1kHz) A-weighted	79.1dB	98.2dB	97.5dB	88.2dB	90dB	98.4dB	90.8dB

How we tested

Australian PC User magazine was the first magazine in the world to carry out quantitative audio testing on MP3 players and has established a reputation for its unrivaled audio benchmarks. We connected each unit to our Audio Precision System Two audio test measurement unit and carried out the following tests:

- * **Maximum output signal.** We measured the unit's output signal in millivolts RMS with the volume setting at maximum. This shows how well suited the player is to being connected to a stereo system. In general, the higher the output signal, the better.
- * **Total harmonic distortion (THD).** Using the sinewave tones we created, we then measured the amount of unwanted harmonics generated by each player, graded as a percentage of the total output level. This was measured at 50Hz, 1kHz and 15kHz using two methods — firstly with no filtering (this showed how much unwanted radio-frequency distortion is produced by the player) and with 30kHz filtering (this measures the unwanted filtering in the audio only). Ideally, THD should be 0% however anything under 0.1% is passable, 0.05% very good and 0.01% outstanding.
- * **Clipping.** Setting the output volume level to maximum and measuring the THD result, we checked each player for clipping. Clipping distortion occurs when the output amplifiers of the player

are overloading by the audio file causing 'gravelly' distortion. If a player did have this fault, the above THD tests were carried out at an output level one volume setting notch below the onset of clipping. Ideally, no player should exhibit clipping distortion.

* **Signal-to-noise ratio (SNR).** Using the maximum output signal level, we measured the ratio between the loudest possible sound (output set to maximum using the 1kHz sinewave tone) and the background noise generated by the player. We measured the SNR in two ways — with no filtering (to check the noise produced by the player's electronics) and then A-weighted filtering, which is said to give a more accurate picture of how our ears perceive audio levels at different frequencies. Ideally, the SNR of any player should be infinite. Better than 80dB is good, better than 90dB very good. Other tests included:

* **Video testing.** Those players that supported video playback were also checked for image resolution, frame rate and overall quality with all of these combining to give a video component score out of 10.

After all this, we then compared the units for storage, price, general features, workmanship and software support to give a final percentage score.

PORTABLE AUDIO/VIDEO PLAYERS: HOW THEY COMPARE

Make and Model	Apple iPod Touch	Apple iPod nano	Apple iPod Classic	Creative Zen	Creative Zen Mosaic	Creative Zen X-Fi	Laser InterMate MP4-V970	Laser V-Mate MP4-G12	Samsung YP-S3	Samsung YP-P2	Sandisk Sansa View	Sandisk Sansa Fuze	Sony Walkman NWZ-A728
Storage type	Internal Flash	Internal Flash	Hard Drive	Internal Flash	Internal Flash	Internal Flash	Internal Flash	Internal Flash	Internal Flash	Internal Flash	Internal Flash	Internal Flash	Internal Flash
Capacity	32GB	8GB	80GB	4GB	2GB	8GB	8GB	4GB	4GB	4GB	8GB	4GB	8GB
Storage expansion slot	No	No	No	SD/SDHC card	No	SD/SDHC card	MicroSD card	No	No	No	MicroSD/MicroSDHC card	MicroSD card	No
FEATURES													
Resolution (pixels) and screen	480 x 320, colour	320 x 240, colour	320 x 240, colour	320 x 240, colour	160 x 128, colour	320 x 240, colour	400 x 240, colour	1.8in TFT, colour	220 x 176, colour	480 x 272, colour	320 x 240, colour	220 x 176, colour	320 x 240, colour
FM radio	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Line-in recording	No	No	No	No	No	No	No	No	No	No	No	No	No
Voice recording	No	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Video playback	No	No	No	Yes	Yes*	Yes	Yes	Yes	Yes*	Yes	Yes	Yes	Yes*
FM transmitter	No	No	No	No	No	No	No	No	No	No	No	No	No
Video output	Yes (640 x 480)	Yes (640 x 480)	Yes (640 x 480)	No	No	No	No	No	No	No	No	No	No
Battery type	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion	Internal Li-ion
Works with Windows Explorer	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Operating systems supported	Windows, Mac OS	Windows, Mac OS	Windows, Mac OS	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP	Windows Vista/XP
Size (height x width x depth - mm)	110 x 62 x 9	91 x 39 x 7	104 x 62 x 11	83 x 55 x 12	80 x 40 x 13	83 x 55 x 13	N/A	N/A	95 x 44 x 10	100 x 52 x 10	N/A	76 x 52 x 9	94 x 51 x 10
Weight (grams)	115	36.8	140	65	43	69	N/A	N/A	53	85	N/A	59	58
Rated battery life (audio/video - hours)	36/6	24/4	36/6	30/5	32/NA	36/5	10/4	N/A	25/4	35/5	35/7	24/5	36/10
CODEC SUPPORT													
— MP3/WMA	Yes/No	Yes/No	Yes/No	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
— WAV/AAAC	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes^/No	Yes/Yes	No/No	No/No	No/No	No/No	Yes/No	Yes/No	Yes/Yes
— OGG	No	No	No	No	No	No	No	No	No	No	No	No	No
— video codec	MPEG-4 (Xvid), H.264	MPEG-4 (Xvid), H.264	MPEG-4 (Xvid), H.264	WMV, DivX, Xvid, MJPEG	Proprietary	WMV, DivX, Xvid, MJPEG	MPEG-4 (Xvid, MJPEG)	AVI (AMV, proprietary)	MPEG-4 (SVI)	WMV, MPEG4 (SVI)	MPEG4, H.264, WMV	Proprietary MPEG4	H.264, MPEG4
TEST RESULTS													
Clipping at max. output	No	No	No	No	No	No	No	No	No	No	No	No	No
Maximum output signal (mV RMS)	874	918	944	501	490	496	NA	512	577	286	587	480	462
THD at 50Hz (30kHz)	0.032%	0.006%	0.007%	0.021%	0.019%	0.67%	NA	0.047%	0.09%	0.020%	0.063%	0.02%	0.012%
THD at 1kHz (30kHz)	0.027%	0.014%	0.013%	0.078%	0.015%	0.54%	0.008%	0.013%	0.023%	0.022%	0.061%	0.02%	0.018%
THD at 15kHz (30kHz)	0.129%	0.130%	0.133%	0.029%	0.027%	0.11%	NA	0.011%	0.077%	0.070%	0.059%	0.02%	0.109%
THD at 50Hz (flat)	0.500%	0.672%	0.710%	0.374%	0.331%	0.75%	NA	0.055%	0.050%	0.170%	1.620%	0.68%	0.390%
THD at 1kHz (flat)	0.460%	0.625%	0.670%	0.392%	0.321%	0.69%	NA	0.032%	0.452%	0.104%	1.740%	0.68%	0.251%
THD at 15kHz (flat)	0.613%	1.210%	1.250%	0.419%	0.371%	0.39%	NA	0.037%	0.538%	0.258%	7.450%	0.70%	1.830%
SNR (-1dBFS at 1kHz flat)	64.7dB	42.2dB	42.0dB	47.6dB	50.5dB	51.0dB	NA	69.6dB	51.4dB	60.2dB	36.3dB	59.1dB	46.8dB
SNR (-1dBFS at 1kHz A-weighted)	96.2dB	96.5dB	96.1dB	88.3dB	92.9dB	88.9dB	93.3dB	87.3dB	93.0dB	86.5dB	92.6dB	98.0dB	89.7dB
Video quality (out of 10)	10	8	8.5	8.5	5	8.5	8	4	6.5	9.5	8.5	5	8

NOTE: * Video frame rate of 20fps only. ^ WAV format supported four-bit ADPCM.

Encode videos for your media player

Apart from those models that require encoding to proprietary video formats, none of the players come with any sort of video encoding software. However, that's not a problem — you'll find our PC User RockPod 2009 software on this month's cover disc. Don't forget to check out our Portable

Media Masterclass feature on page 61. RockPod 2009 will encode video for a wide range of portable media devices including the entire Apple iPod range as well as most of the Creative Zen players, plus a swag of other devices including the PSP, Windows Mobile PDAs and more. ☺

Portable media masterclass

Darren Yates shows you how to make the most of audio and video on your portable media player using PC User RockPod 2009.

Before the iPod Nano, if you wanted to play video clips and movies on the go, you had to carry around a somewhat bulky, hard drive-based device. Now, however, you can pick up an MP4 player for very little money and play your movies from the player's flash memory. In fact, more than half the units we tested in this month's roundup of portable media players (page 54) were capable of playing back video in one form or another.

Unfortunately, while many vendors offer video playback, very few actually include software to convert videos to the player. Converting music to your player can be done easily with either iTunes or Windows Media Player (depending on your device) but video is seldom catered for.

INTRODUCING ROCKPOD 2009

Last year, we launched what has since become one of our most popular tools — RockPod 08. RockPod enables you to convert audio and video files into a range of formats that play on the majority of portable media players. Since the launch of RockPod 08, the feature most readers have requested is the ability to encode multiple audio and video files in one hit. This month, we're launching RockPod 2009, and we're happy to say this new version includes batch-file encoding.

RockPod 2009 can encode any number of audio and video files at a single go — in fact, we're yet to find the limit of files that can be processed in one session — and it supports individual settings for each of those processes. You're not limited to encoding all



On the cover DVD

You'll find a copy of PC User RockPod 2009 on this month's cover disc as well as an in-depth video tutorial on how to get the most out of it. RockPod 2009 is copyrighted software and is free to use for personal and educational use only. It is not to be distributed in any form without prior written permission from the author. While the software has been tested, it comes with no warranty of any kind — use at your own risk.

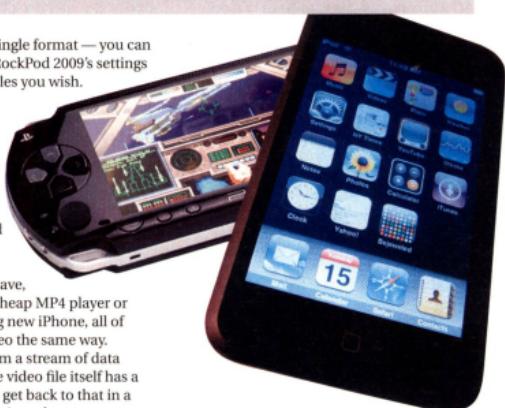


files in a session to a single format — you can mix and match all of RockPod 2009's settings and create whatever files you wish.

VIDEO BASICS

Before we dive in at the deep end with RockPod 2009, this is a great time to do a refresher on video and audio files. It doesn't matter what type of playback device you have, whether it's a PDA, a cheap MP4 player or even a brand spanking new iPhone, all of these devices play video the same way.

Video is played from a stream of data within a video file. The video file itself has a format, although we'll get back to that in a minute. Because video is such a storage-intensive stream of data, it has to be compressed to a more user-friendly size. The tiny piece of software that does that is called an 'encoder-decoder', or 'codec' for short. You probably know a few already — Xvid and DivX are examples of MPEG-4 video codecs,



MPEG-2 is the video codec used on DVD movies and H.264 is the fairly new codec seen on Blu-ray movie discs.

These are also examples of 'lossy' codecs, meaning that they throw away data that's not absolutely necessary to encode your video at the quality you request. The rate at which that data is processed or 'streamed' is known as the 'video bit rate' and is usually measured in kilobits per second (Kbps). In general, the higher the video bit rate, the higher the video quality will be, within limits. We'll come back to this later.

The video images you see when a file is played are actually a series of video frames and those frames have a common set of specs. Each frame consists of a fixed number of picture elements or 'pixels', the number of pixels per frame is known as the 'frame size'

What's legal?

Currently, Australian law says it is legal to copy your audio CDs to portable devices, provided you copy them at a lesser quality, which typically means using a lossy compression codec such as MP3 or AAC. However, it is *not* legal to copy DVD movies you've bought to your portable player. The reason is that DVD movies contain copy-

protection measures whereas audio CDs don't and it's illegal to defeat those copy protection measures. It's no secret that there are free tools on the internet such as HD Decrypter and SmartRipper that enable you to rip DVD movies to files on your computer. These can then be converted to your portable media player, but doing so is illegal.

and is usually represented as the horizontal resolution by the vertical resolution as in "720 x 576 pixels" for example (the common frame size for DVD video).

The rate at which frames are displayed per second is known as the 'frame rate' and that's measured in frames per second (fps). PAL DVDs have a 25fps frame rate while NTSC DVDs from the US are played at 29.97fps.

The first thing you need to commit to memory is this — video bit rate is independent of frame size and frame rate. The video bit rate is simply the rate at which data in your media file is processed. It doesn't determine the frame size or frame rate, however it does primarily affect the video quality. We'll look at specific examples of this later in the article.

AUDIO BASICS

Your typical movie or video file consists of video and audio data or 'streams' and these are processed simultaneously so you can see the images and hear the sound at the same time or 'in sync'. Audio data streams are similar to video streams. They typically use an audio codec such as MP3, AAC or AC-3 to compress the data down to more manageable levels.

Audio tracks are digitally sampled at a specific rate of samples per second known as the 'sample rate' — that's typically 44.1kHz for audio CDs or 48kHz for DVD movie audio. Depending on the source, the audio could also have multiple channels — music is typically stereo (two channel) whereas movie soundtracks can be quadraphonic (four channel) or what we call 'surround sound' (5.1-channel).

The rate at which the audio data is processed is known as the 'audio bit rate'. As with video, the higher the rate the higher the quality, within limits.

ENCODING FILES

With so many different portable media players on the market, we cannot hope to give you a dedicated 'how-to' on every one of them, so it's important you understand the principles of audio/video encoding rather than blindly following a series of steps. The good thing is that the process is something you can easily learn and understand.

The first step is to get to know your media player. Knowing the basic specs of your particular player will put you way out in front and well on the road to getting perfect audio/video encodes every time.

The things you need to know are:

* **Native screen resolution.** The number of

AUDIO/VIDEO BIT RATE GUIDE

Codec	Bit rate for given quality (Kbps)		
Audio	Bearable	Good	Perfection
MP3	128	160	256
AAC	96	128	192
WMA	128	160	192
Codec	Bit rate for average quality (Kbps)		
Video	320x240-pixels	480x272-pixels	640x480-pixels
MPEG4 ISO	500	750	1000
Xvid/DivX	450	700	900
H.264	400	600	800

pixels on your player's screen.

* **File format support.** The types of files it can play eg. AVI, MP4 etc.

* **Audio and video codec support.** The types of audio and video codecs it can handle.

* **Maximum frame rate.** This is important, particularly for the more basic phones as some have a limit on the maximum video frame rate they can handle.

Remember to always encode your video files to the native screen resolution of the device you intend to play them on. Learn that one rule and you're halfway to being an encoding expert. Even if the device can handle files with frame sizes larger than its screen's native resolution, there is no point whatsoever in doing this because the player has to throw away the pixels it can't use in order to fit the image to the screen. You also waste truckloads of space encoding those pixels into the video file in the first place. Instead of a two-hour movie fitting into just 256MB of memory it may end up requiring 640MB. You may have a video file that has excellent resolution, but it certainly won't look any better on your player's small screen. Stick to encoding at native resolution and you won't look back.

WHERE TO GET YOUR AUDIO AND VIDEO

You can buy music and movies online, but there are many other places you can get media files including your own digital video camera, YouTube, your personal video recorder (PVR) and the vast range of legally free music downloads from independent artists. RockPod 2009 can take audio and video files from almost anywhere and convert them into the right format. Always remember though — your encoded video files will never look better than the original files. It doesn't matter how high you pump up the encoding bit rates. If the original video looks like

rubbish there's little you can do to make it look much better. So it always pays to start with the highest quality video and audio you can get because it won't get any better when you convert it.

BIT RATE GUIDE: AUDIO

Before we dive head-first into some examples, I've put together a rule-of-thumb guide to video and audio bit rates and what you should expect. You can see it in the table on the left. I've included a range of information that will hopefully help you choose the best options for your device.

When it comes to music, most encoding tools will default to a bit rate of 64Kbps per channel, which means 128Kbps for typical stereo music. For typical listening on a crowded, noisy train, that's probably good enough. But if you're relaxing on a desert island, you'll probably start hearing what sounds like warbling birds in your music. That's digital compression noise, and it grows worse the lower the bit rate you choose.

For MP3 music, you really need 192Kbps stereo to get anything like good hi-fi quality. I personally prefer 256Kbps to ensure the frequency response isn't compromised. Newer audio codecs such as AAC and OGG can give you good results at 160Kbps. If you need to push your compression harder, AAC does do a reasonable job at 96Kbps but I'd be reticent to use WMA or MP3 at that low a rate. Try it and see if you like it.

BIT RATE GUIDE: VIDEO

Due to variations in screen resolution from player to player, there's no 'one size fits all' bit rate option for video. Although video bit rate is independent of frame rate and frame size, it isn't if you want to maintain a particular quality. You can set the video bit rate to whatever you want, regardless of frame size, but the reality is that to get a decent quality it needs to rise in line with any increase in frame rate and/or frame size.

The caveat to that is that it also depends on the video codec you use. Just as we've talked about different bit rates for different audio codecs to obtain a certain quality level, not all video codecs are created equal. MPEG-1 isn't as efficient as MPEG-2 and MPEG-2 isn't as efficient as MPEG-4, Xvid or DivX. That means codecs such as MPEG-1 need a higher bit rate to achieve the same level of video quality as MPEG-4-class codecs. However, none of them are as

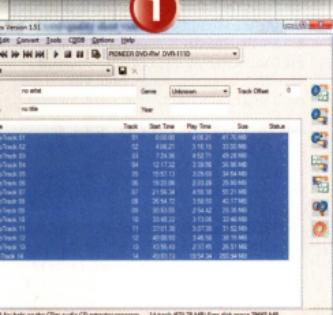
Trying different file formats

What if you have a video file you want to convert and it's not in RockPod 2009's supported list? Well, you can try your luck using this little trick. When you click the 'Load File' button, type in '*' and the file extension of the file you want to try, for example, *.flv . This will list all the .flv video files in your current folder. Select the FLV video you

want to encode, choose a device, set a save filename and location and hit the Start button. RockPod 2009 will display at the bottom of the screen (in the FFmpeg Command Line Results window) whether or not it can handle it. Hint: RockPod 2009 will handle .flv video files using this method.

stepbystep RIPPING AN AUDIO CD TO SEPARATE MP3 TRACKS

download and install CDEx, start it and load your favourite music CD into your PC's CD or DVD drive.

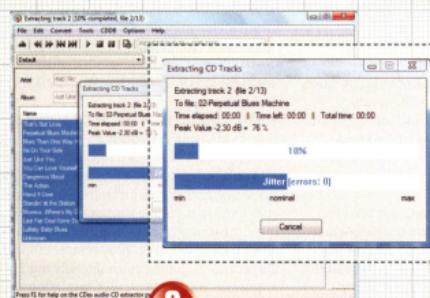
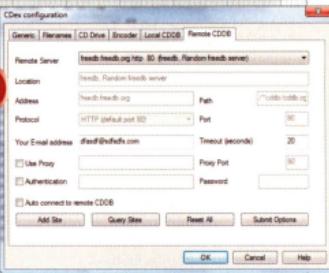


1

Copying or 'ripping' your audio CDs is the cheapest way to get music onto your portable media player. Various versions of Windows Media Player can do this, but one tool that works regardless of your version of Windows is CDEx. Ripping your audio CDs is easy, it's free and it's legal. Here's how.

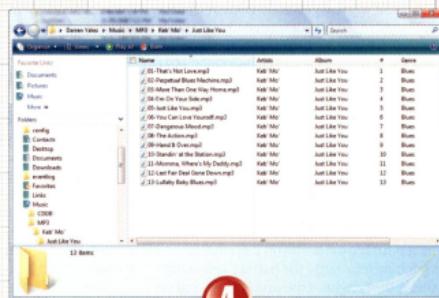
Press F4 to bring up the Settings menu, click on 'Remote CDBB' and in the email address entry, you can either type in your real email address or a bunch of random characters, both work. Click the OK button to close. Now choose 'CDBB' from the menu and click on 'Read Remote CDBB'. This will automatically load the artist, album and track names for your audio CD.

2



3

When ready, press the second-from-top icon on the right-hand side to begin ripping your audio CD and compressing the files into MP3. (128Kbps MP3 stereo is the default option. You can change the settings in the Settings menu by pressing F4 and clicking on the Encoder tab.)



4

Once the process is complete, you'll find your new MP3 files in the 'Music' folder under your username folder in Windows Explorer. Copy those files to your portable media player either using Windows Explorer, or iTunes if you're using an iPod.

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storage-efficient as MPEG-4 AVC or H.264. You could easily ask why we bother with others and not just use H.264. Firstly, not all devices support H.264 and secondly, despite what many of the wet-behind-the-ears video bloggers on the internet might say, H.264 isn't perfect.

Storage efficiency (by that I mean the ability to squeeze good quality video into the smallest file size) isn't the only thing you need to worry about when it comes to watching video on a portable device. The other thing you must consider is what I call the encoding complexity of the codec. This is something I can't find anyone talking about on the web but it's something that's vitally important to one particular aspect of all portable media players, and that's battery life.

The reality is the more storage-efficient a codec is, the more CPU-intensive it is, meaning the more CPU processing power the codec requires to display video on the screen. And when you're running the CPU off a battery, the harder the CPU has to work and the quicker the battery is drained.

Here's a perfect example — I can encode a movie for my iPAQ rx1950 PDA using WMV/WMA video/audio compression and the battery will last approximately three hours. The same movie encoded using DivX/MP3 video/audio compression and played back on the freeware player TCPMP will see the battery last nearly seven hours.

While no-one thinks much of it, MPEG-1 is actually a very good codec for portable devices. It's a simple codec so it requires few CPU cycles to run, which means the battery will last longer. Quite frankly, there's little value in watching a movie encoded in H.264 on a portable device if you can't finish watching it because the battery's given up under the weight of the processing. And on smaller screens, it's more difficult to notice any encoding errors that older codecs might produce. I'd prefer to watch a full movie of average quality than start watching a movie in brilliant quality only for the battery to tank it halfway through.

In practice, few devices outside a PDA will support MPEG-1 playback so your next best option is something like MPEG-4 or DivX, where you have a better quality of codec that can deliver good results without overweighing down the CPU.

An option RockPod 2009 includes is what we call 'MPEG-4 ISO', which is a generic version of the MPEG-4 codec. Xvid and DivX are specific and popular variations on MPEG-4 but because they include extra features, they require slightly more processing power



Apart from the Apple iPod touch, there are plenty of portable devices capable of playing video on the go including Windows Mobile-based PDAs and Sony's PlayStation Portable (PSP) so depending on the devices you own you may already have a perfectly good media player ready to go.

to encode and decode. Again, not all devices support MPEG-4 ISO but it's well worth trying as the ISO codec is a lower-complexity option that still gives very good video quality at lower bit rates.

In short, use the bit rate table on page 62 as a guide, but don't feel pigeonholed into using it. Just know that everything is a compromise and when you increase a parameter in one area you have to decrease another.

VBR VS CBR

There's one last thing to look at as far as video is concerned, and that's the difference between variable bit rate (VBR) and constant bit rate (CBR). Typically, this isn't an issue with audio encoding as most devices only handle CBR audio, but it is an important one for video.

When we talk about a constant bit rate, we're referring to the fact that the video data is streamed from the file at a constant rate per second. Videos encoded using a variable bit rate will have the data stream rate vary depending on the video. Ideally, you should always aim to use VBR encoding — it allows the bit rate to rise when the movie action speeds up and fall when there's little movement or the scene is dark. This allows you to not only maximise video quality but also minimise the required storage at the same time. Conversely, using a constant bit rate gives you no wriggle room and you particularly notice it with high-speed action scenes — unless the bit rate is exceedingly high, the video will begin to get very blocky, a result of insufficient video bit rate available to store all the required information in the video file when it was encoded. Done right, a VBR-encoded video should look better and use less space than a CBR-encoded one.

The one gain you get with CBR is that it's

much easier to determine how large a video file will be before you encode it. With some VBR methods, it all depends on the video complexity. The way you can get around that problem with VBR is to use what's called a 'two-pass' encoding process, which basically means the encoding software encodes the video twice. The first time, it effectively monitors the complexity of each frame. During the second pass, it uses the info to ensure that quality is maintained within the confines of your specified average bit rate. We'll be talking more about VBR encoding next month.

AUDIO/VIDEO FILE FORMATS

While audio and video files are essentially just streams of data, different codecs have certain abilities that require the use of certain file formats or 'containers'. Audio-Video Interleave or AVI is perhaps the most well known file container, however it lacks certain capabilities that newer codecs such as Xvid and H.264 have. That's why you'll find audio-video files using AAC audio and Xvid or H.264 video are, more often than not, found inside MP4 files.

In most situations, you can boil down the file format requirements like this:

- * **AVI files.** MPEG-4 ISO or Xvid/DivX video and MP3 audio.
- * **MP4 files.** MPEG-4 ISO or Xvid/DivX or H.264 video and AAC audio.
- * **WMV files.** WMV video and WMA audio.

You'd be hard-pressed to find a portable video player that couldn't handle at least one of those three file formats; they're the three most popular options available. To make it easy, RockPod 2009 handles those file format decisions automatically but it's important you understand the relationship of file container to codecs.

USING THE NEW ROCKPOD SOFTWARE

You'll find a copy of RockPod 2009 on this month's cover disc and don't forget to view my exclusive video tutorial on how to get the most out of the software.

Depending on your device, copying your converted files to your device's storage could be a simple case of using Windows Explorer or, if you're using an iPod, you'll have to sync it across using iTunes. Whatever way you do it, remember that video and audio files are simply streams of data and there's usually a way to get audio and video from one format to another that will work for your portable media player.

Beware low-speed video players

Just because a device says it supports video doesn't mean it does it well. Many older so-called 'video-capable' phones are only able to handle small clips at no more than 15fps. Even some of the portable video players I tested this month can do no more than 20fps. RockPod 2009

assumes you're working with a fully-capable video player that can handle video at its native resolution up to 30fps. Australian PAL-standard video is 25fps, so we think any player worth its weight should do at least this otherwise it's not worth your money.

stepbystep GET YOUTUBE VIDEOS ON YOUR PORTABLE PLAYER

Head to the YouTube website (www.youtube.com) and find the video you want to download. Copy the video address from the browser address bar.

1

YouTube - Lachlan Valley Railway 21 March 2008 - Mozilla Firefox

Lachlan Valley Railway 21 March 2008

From steamfreak3450 Joined: 6 months ago Videos: 11

Added April 19, 2008 (More info)

LVR double header with 3237 and 5917

Embed: object width="425" height="344">param name="movie" value="http://www.youtube.com/watch?v=GOTCdfyfOfe&feature=related"</object>

More From: steamfreak3450

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- 3237 & 5917 to Harden 00:50 From RiskyWhit Views: 1,040

Go to www.keepvid.com and copy that address into the entry panel on the page. Press the download button. Depending on the age and quality of the video, you'll get either one or two download options. Choose the highest quality download option available.

2

KeepVid: Download and save any video from youtube, Dailymotion, Metacafe, iFilm and more! - Mozilla Firefox

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1.1 Drag this button onto your toolbar
2.2 Click Keep It when watching a video to download it

Enter URL of video page here example: <http://www.youtube.com/watch?v=y2V5aBmDTW5k>

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Once you've downloaded the file, fire up RockPod 2009 and load in the file you just downloaded. Choose your device or codec from the Device/Codec list, choose a save filename and location and then press the Start button. Once completed, copy the new file to your device using Windows Explorer or iTunes if you're using an iPod. Fire up the device's video player and enjoy the show.

3

PC User RockPod 2009, written by Darren Yates (Build 10)

RockPod 2009

Video options

Device/Codec DEVICE: Nokia 6110 MPEG4

Q-scale 5

Frame size 320x240-pixels (PDA/iPod screen)

Aspect ratio Use original aspect ratio

Audio options

Audio codec AAC (Advanced Audio Codec)

Bit rate (Kbps) 128

Sample rate 48kHz (DVD)

Channels Force to stereo (two channels)

Load File C:\Downloads\video.mp4

Save File C:\Downloads\My_Nokia_video.mp4

About Remove File Clear List Cancel Start

No. Input File Output File Device/Codec Video

Progress 0%

FFMPEG command line results

```
frame= 269 f=48 q=5.0 size= 709kB time=10.8 bitrate= 539.4kbit/s
frame= 293 f=48 q=5.0 size= 762kB time=11.7 bitrate= 532.7kbit/s
frame= 321 f=49 q=5.0 size= 627kB time=12.8 bitrate= 527.1kbit/s
frame= 349 f=49 q=5.0 size= 901kB time=14.0 bitrate= 529.0kbit/s
```

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How to use RockPod 2009

Now that we've gone over the basics, let's take a look at how RockPod 2009 works. It's designed to handle audio and video from a wide array of sources and by default, handles the following file formats:

- * **Video:** AVI, VOB, DVR-MS, EVOB, MPG, MP4 and WMV.
- * **Audio:** MP3, WAV, OGG, AC3, MP2, M4A and WMA.

You can also extract audio from video files and deinterlace video files. Deinterlacing is a great option for video that's come from your MiniDV camera as it will remove the 'comb effect' where fast-panning frames can look like they've been run through the teeth of a comb.

RockPod 2009 is basically what's called a 'front end' or user interface for the FFmpeg command-line audio/video encoder and makes it much easier to use.

CHOOSE YOUR DEVICE/CODEC

We've worked hard to make RockPod 2009 even easier to use than RockPod 08, and to make the most of RockPod 2009, the first thing you should do is set the Device/Codec option. Not only does this ensure your video is encoded in the right format for your device but we've designed it so that, if you choose a specific device, it automatically selects the correct frame size and audio codec settings at the same time.

So if you choose WMV video encoding, the audio codec is automatically set to WMA. Choose H.264 encoding for video, and AAC becomes the audio encoding option.

You'll see from the drop-down list that there's a sizeable list of devices to choose from. If you can't find your particular device, don't worry — look for an option that's close to your device and select that instead. While there are hundreds of portable media players on the market, most of them are pretty similar under the bonnet, having similar codec options and screen resolutions.

CHOOSE THE CORRECT FRAME SIZE

This is arguably the next most important setting in RockPod 2009, given what we've talked about so far. For the most part, choose a device from the list above and RockPod 2009 will automatically select the correct frame size for the native screen resolution of your chosen device. However, nothing is locked in with RockPod 2009 — while it will automatically select what we think is the correct resolution for a particular device, you are free to change the frame size to something else. Just make sure you know what you're doing before you start your encoding.

One reason to change it would be if

you have an iPod Nano or Classic, for example, and you want to output video from the device to a TV. In this situation, the iPod can output 640 x 480-pixel video and it would be worth encoding video to this size if you're going to use it in this way. To set this, just click on the drop-down box and select the 640 x 480 pixel option. Easy.

USING BATCH-FILE ENCODING

As we mentioned before, the big new feature for RockPod 2009 is its ability to process multiple files in one go. This is a great option if you want to encode a swag of audio or video files overnight and copy them to your player the next morning. All you do is set up your files, press the Start button and go and do something else. RockPod 2009 will take care of the rest.

To give you maximum flexibility, every RockPod 2009 setting can be adjusted on every file before you add it to the batch process. You don't have to settle for encoding all the files to one group of settings. The way it works is this: load in your file to encode, adjust all your settings and choose a save filename and folder, but instead of hitting the Start button, press 'Add to List' instead. This will load the file and its settings into the 'to do' list. After that, you're ready to load in another file, choose your settings and so on.

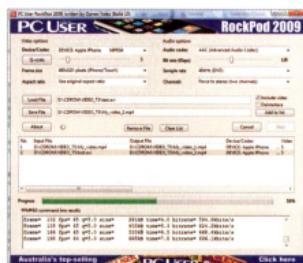
At the moment, there's no identifiable limit to the number of files you can encode in one batch, although obvious storage and processing speed limitations will come into play. If at any point you change your mind about a video file or you want to change the settings, simply click on that entry in the list and press the 'Remove File' button. This will remove the entry from the list and you're free to start that entry again. If you want to get rid of the entire list, just click the 'Clear List' button.

When you're satisfied that the list is ready, press the Start button and RockPod 2009 will begin processing that batch. It'll highlight the current entry it's working on as well as giving you a progress bar update on how far it has to go.

MAKE ROCKPOD 2009 WORK FASTER

Encoding video is one of the most intensive tasks you'll ever ask of your computer, so here are a few tips to try and squeeze out some more encoding speed.

- ❶ Don't try playing *Crysis* at the same time. In fact, don't do anything. Allow your CPU to work on the video encoding alone.
- ❷ If possible, use videos that are already in the same frame size as your device for best encoding speed. You can then select 'Use original frame size' when encoding and you'll



RockPod 2009 now includes support for batch-file encoding.

get slightly more encoding speed.

❸ If you have to encode to MPEG-4, use MPEG-4 ISO encoding where possible, followed by Xvid/DivX and H.264 last. H.264 might look good but it takes about twice to three times as long to encode a video to H.264 as it does MPEG-4 ISO. WMV encoding is generally a bit faster than MPEG-4 ISO.

❹ If you have a computer with a dual-core processor, use it to encode your videos. FFmpeg, the command-line audio/video encoder used by RockPod 2009, supports multi-core processing so you should see significant speed improvements. As a guide, a 3GHz single-core Pentium 4 computer can encode 320 x 240-pixel H.264 video into MPEG-4 ISO format at around 180fps.

USING ROCKPOD 2009'S Q-SCALE SETTING

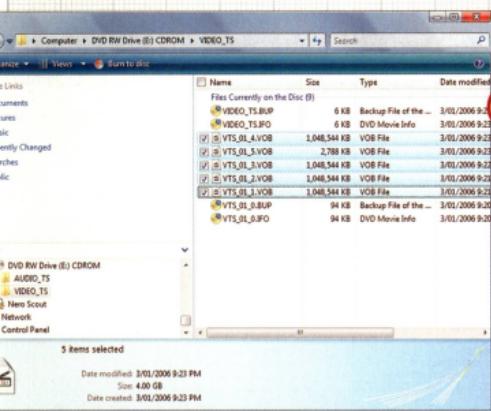
By default, RockPod 2009 uses variable-bit-rate (VBR) video encoding to ensure you maximise video quality. However, to keep it fast and simple, it uses FFmpeg's single-pass Q-scale quality-setting mode.

The idea is that FFmpeg tries to maintain a certain level of quality in the video, rather than worrying specifically about the bit rate. Using the Q-scale, a setting of two ensures maximum possible quality and maximum file size while 32 is pretty much rubbish but uses little space.

Ideally, you want to use a Q-scale of about five to ensure the right balance between bit rate and video quality. The smaller the screen, the more you can afford to push the Q-scale higher (lower the video quality).

This is where experimentation is a wonderful thing. Grab a decent-quality short video clip from somewhere and use it as your reference. Then, convert it to different formats using various Q-settings and watch the results. You should see the quality and file size progressively drop as the Q-scale is raised.

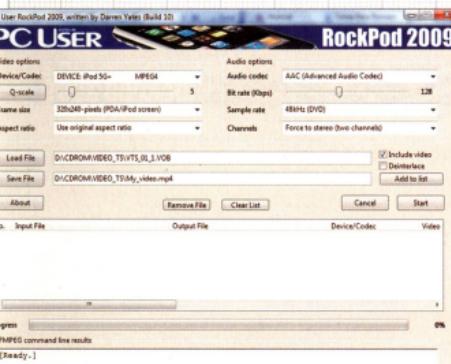
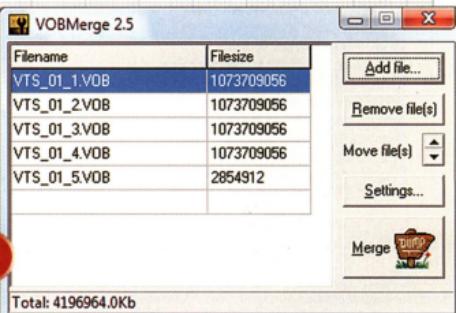
stepbystep GET MOVIES ON YOUR PORTABLE PLAYER



1 HD Decrypter is possibly the easiest tool for this job, but it's easy enough to do with Windows Explorer and a freeware tool called VOBMerge. First, look in the VIDEO_TS folder of your home movie DVD and copy the .VOB files to a folder on your PC's hard drive.

Download, install and start VOBMerge (www.videohelp.com/tools/VOBMerge). Select the VOB files you just copied from your DVD in their correct order and click the Merge button. Choose a save filename and location and click the Save button.

2



3

When VOBMerge has done its job, fire up RockPod 2009, load in the VOB file you just created and choose your desired device/codec from the Device/Codec list. Choose a save filename and folder location.

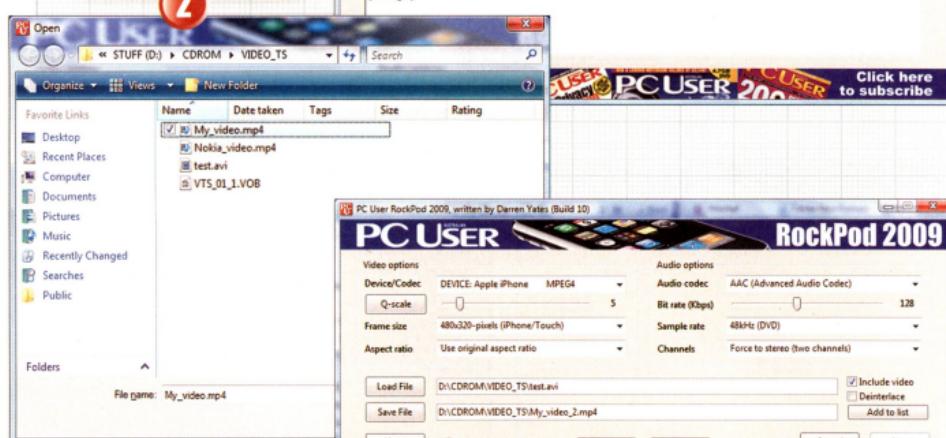
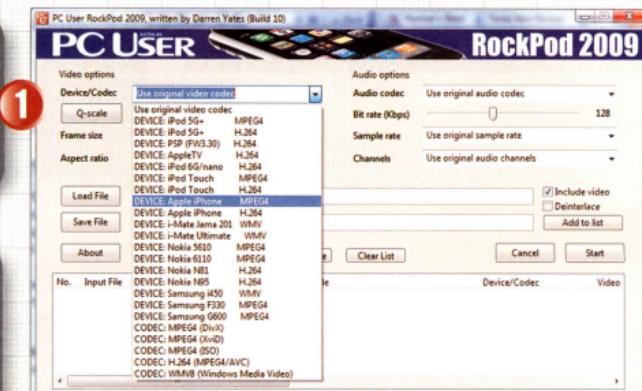
4

Press the Start button. Once the file is converted, copy it to your portable media device and enjoy the show.

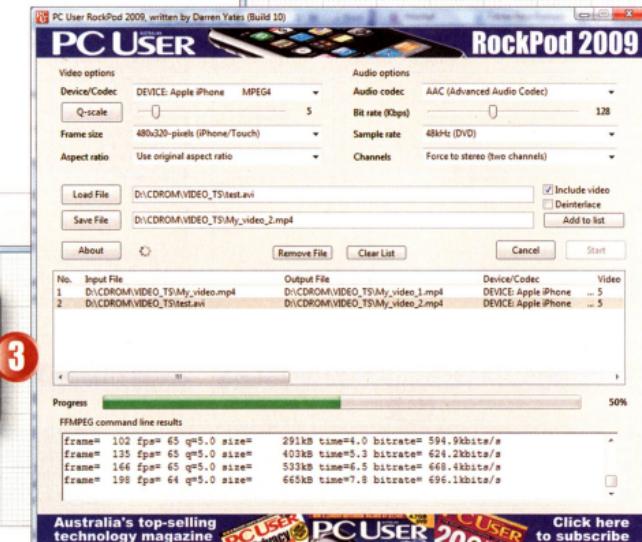
Step by Step CONVERT MULTIPLE VIDEOS TO YOUR IPHONE

Fire up RockPod 2009 and select 'Apple iPhone' from the Device/Codec list. There are two options; MPEG4 or H.264. H.264 will give better video quality but MPEG4 will give longer battery life. Choose the option that best suits your needs.

Load in your downloaded video file — make sure it is one of RockPod 2009's supported formats first or else it may not work. Choose a save filename and location, then click the Add To List button. Repeat this step again for all the videos you want to convert.



After adding the last video to the list, press the Start button. When the process is complete, connect your iPhone, start iTunes and sync the new video files across. iTunes should just copy the files straight across.



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Vegas Movie Studio Platinum 8
November 2007



Vista and Office 2007 upgrade guide

What are the benefits of upgrading your business PCs to the latest versions of Windows and Office? What are the traps? **Angus Kidman** explains.

Windows Vista and Microsoft Office 2007 have both been on sale for almost two years. While that may seem relatively ancient in the fast-changing software world, it also means they're close to the ideal point for business upgrades — established enough for show-stopper bugs and niggling performance problems to have been eliminated, but with a long working life span before they're replaced by successor versions.

Making changes in new versions of products such as Windows and Office, which boast hundreds of millions of active users, is always going to provoke argument, and it's almost impossible to produce a bug-free release that pleases everyone. Even allowing for that, it's safe to say that both Vista and Office 2007 have been the most controversial releases from Microsoft in some time.

A lack of driver support for some common hardware configurations, confusion over whether Vista-certified hardware could actually run the new OS and concerns over performance all meant that Vista enjoyed a lukewarm reception on its release. Office didn't suffer from as many performance criticisms, but the change from a traditional menu-based interface to the new 'ribbon' design was also unpopular with users used to the existing system. (See 'Why is Office 2007 not better?' on page 73 for a discussion of the motivation behind this change.)

A common axiom for business technology is to wait until the first service pack of updates and bug fixes is released and established as stable prior to considering a business-wide upgrade. Service Pack 1 for Office 2007 was released in December 2007, and has generally been considered an unproblematic release. Service Pack 1 for Vista was somewhat delayed and eventually appeared in April 2008 for general users.

While there have been some problems getting it to work with specific hardware configurations, it's been largely well-received and has eliminated some of the file and network performance criticisms that dogged Vista on its initial release.



Vista uses a feature known as the Windows Experience Index to rank how well your PC is performing, rated across five key areas. The lowest score determines the overall rank. In the example above, a relatively low graphics score determines the final result. The index doesn't take into account the applications you use, so it's only a very rough determinant of performance, but the interface offers basic suggestions on upgrades that might improve your Vista experience.

If your existing business PCs are running older versions of Microsoft products there may not seem much incentive to upgrade. However, if you're looking at getting a new machine and want to stay in the Windows environment (a commercial necessity due to industry-specific software in many cases), then Vista is your only practical choice.

Microsoft has stopped making XP for sale as a retail product or on new machines (with the exception of ultra-mobile notebook PCs with very basic specifications). While it's possible to purchase a machine running Vista Business and then 'downgrade' it to XP, that

adds another layer of complexity to the upgrade process. When it comes to Office suites, you realistically have more choices — you can stick with the existing version or switch to an alternative such as OpenOffice.org — but there are benefits to be had from Office 2007 once you've adjusted to its radical new interface.

If you do decide to upgrade, then develop a careful plan. "Vista and Office deployments are potentially the most disruptive infrastructures your IT organisation can deploy," says Gartner research director Annette Jump, who regularly consults with



Windows

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Windows Vista Compatibility Center

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Results 1 - 10 of 40		Page 1 of 4	Go to page:	50
	3200 Color Jet Printer		Status Unknown	Learn more
	J110		Status Unknown	Learn more
	Lexmark 6350		Compatible	Learn more
	Lexmark X73		Status Unknown	Learn more

The Vista Compatibility Center provides a first port of call to determine if your existing hardware and software are Vista-friendly.

large enterprises on their Microsoft migration plans. "Making the right decisions and avoiding the pitfalls is absolutely essential."

VISTA: EQUIPMENT YOU'LL NEED

If you're upgrading operating systems, in theory you have two choices: installing a new OS on an existing machine, or getting a new PC at the same time. For early Vista adopters, taking the upgrade path was far too painful in many instances, with a lack of drivers rendering machines, and peripherals close to unusable. While those problems are no longer as pronounced, in practice it still makes sense for the majority of businesses to upgrade their hardware at the same time they shift to Vista rather than struggling through an on-machine upgrade. If you're still running XP, that suggests your machine is at least two years old and quite probably older, making it a firm candidate for an upgrade in any case. (The ATO estimates the usable life span of a typical business PC as four years for desktops and three years for notebook machines.)

Microsoft's official company line is that you can run Vista on a machine with an 800MHz processor, 512MB of RAM and 15GB of free hard drive space, but this is frankly a serious understatement. If the only PC your business can afford has these specifications, you'd be better off ditching Windows altogether and moving to Linux.

Adding to the confusion, Vista comes in multiple editions which have different system requirements. We've detailed the official system requirements for the four main versions that small businesses are likely to encounter in the table below. That said, for a business machine Vista Business is (unsurprisingly) the best option. Home Premium will run most applications you want, but lacks some network administration features; Ultimate is overkill for virtually all business needs (unless you want to use the BitLocker Drive Encryption systems).

You may also encounter references to the 64-bit versions of Vista. While 64-bit computing is likely to become more prominent in the future, in practice there

Can I skip Vista altogether?

The negative reaction to Vista, combined with the fact that Microsoft has been suggesting its successor, Windows 7, may appear as soon as 2010, has led some businesses to contemplate skipping a Windows generation altogether, sticking with XP until then and upgrading when its follower appears.

While that's possible, it's a risky strategy for a number of reasons. Even assuming an on-time delivery, waiting until 2010 will likely mean that your PCs could be five years old or more which greatly increases the risk of a hardware failure in the meantime. If that happens, you'll find it very hard to replace that machine with an XP system and you could end up with all the disadvantages of a mixed environment.

More to the point, Microsoft's track record in on-time delivery means you're unlikely to get that option. "We still don't have a clear roadmap for Vista going forward, but we generally believe to be risk-averse you'll have to move to Vista at some point in time," Gartner's Annette Jump says. "Our general expectation is that it would be early 2010, shifted from six months ago, but there's no guarantee. You can never underestimate how late Microsoft will be."

are relatively few general business applications that can take advantage of the 64-bit Vista environment and even fewer drivers for mainstream hardware. The main exceptions are in computing-intensive industries such as design and engineering.

The specification of basic graphics card requirements reflects the demands of Vista's souped-up Aero interface. (You can switch this off if you want; while attractive, it doesn't do much in terms of real productivity.)

Microsoft also specifies hard drive space requirements, but we've ignored those here as in practice it's hard to buy a new machine with a drive too small to run Vista — though you'll definitely get better performance if there's plenty of free space. How much storage you need for applications and data is a separate consideration, but external storage is now so ridiculously cheap that this shouldn't give much pause for thought.

In practical terms, the element that will make the biggest difference to your Vista system performance will be memory. Despite the claimed 1GB minimum, going for 2GB will produce considerable improvements. A higher-powered processor will also help your system power along, but you're better off spending money on memory than extra processing

VISTA HARDWARE REQUIREMENTS

Edition	Processor recommendation	Memory recommendation	Graphics memory	Comments
Home Basic	1GHz	512MB	32MB	Likely to be found on cheap entry-level machines
Home Premium	1GHz	1GB	128MB	Most common option on new retail machines
Business	1GHz	1GB	128MB	Sensible choice for any business with larger groups of networked users
Ultimate	1GHz	1GB	128MB	Probably overkill for most business users

grunt on a machine that's designed for business use.

Alongside the existence of these official recommendations, Microsoft further muddies the waters by offering the Vista Upgrade Advisor, a downloadable program (available at <http://tinyurl.com/63t642>) that you can run on an existing system to assess how well it will run Vista. This can provide some basic guidelines, but our advice about fresh systems being easier to work with still stands.

A related note: if you're planning to upgrade to Vista, it makes sense to upgrade all business machines at the same time, and to make sure they're all running the same version. Having a mixed environment will make it harder to troubleshoot any problems. The same principle applies broadly to PC hardware: if you have six machines from entirely different manufacturers you can expect to spend more time dealing with problems.

SOFTWARE AND HARDWARE COMPATIBILITY

While you may ideally be starting with a fresh fleet of Vista PCs, you'll undoubtedly have business applications you still need to run and existing pieces of equipment — printers, scanners, backup drives — that you want to continue using.

Microsoft deservedly took much flack for compatibility failures in Vista's early days: despite having been in development for five years and actively promoted to the IT community, many applications and drivers simply didn't work when the operating system first emerged. This problem is much less pronounced two years down the track, but if there's a particular application or piece of equipment you need to use on a day-to-day basis, you'll want to be sure it works before making the switch.

A good first port of call for establishing if a given piece of equipment or program works is the Windows Vista Compatibility Center at www.microsoft.com/windows/compatibility. Despite still being labelled as a beta application, this provides a fairly up-to-date guide to whether software and hardware works with Vista. Read the notes carefully — equipment described as compatible may suffer from restrictions and software may be available in a Vista-compatible version but may require an upgrade or additional licensing fees.

While hardware problems may seem more obvious, paying attention to software

Vista pros and cons



Vista's revised Control Panel covers numerous features you may want to customise for your business systems, covering everything from security to interface.



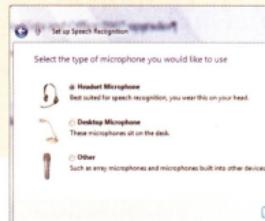
One little-discussed feature of Vista is the ability to train it to use speech recognition to control all kinds of computing tasks. This might not be very practical in a crowded office but it can be a useful way for keyboard-phobic users to get jobs done.

compatibility is still vital. "You need to ensure all your applications are compatible with Vista," Jump advises. "Try to make a list of all your applications and prioritise them."

TIME TO INSTALL

Another common mistake many businesses make is not allocating sufficient time for the upgrade process. Even with the operating system pre-installed, getting machines up and running can take time because new patches will have to be installed and data imported. Allowing a full day over a weekend is a much more realistic idea than assuming you can get everything up and running during business hours.

If you're upgrading multiple machines, it can make sense to do a test install on just one machine and get that fully working with all your required applications before continuing. In larger business environments



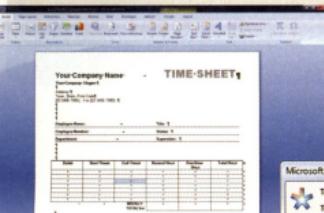
you may want to create a system image (or hire someone to do that for you). In a smaller setup you can repeat the steps used on each machine, but it makes sense to troubleshoot any installation problems on one machine before continuing.

OFFICE 2007

Because the two products were released in tandem, it's easy to assume that Office 2007 and Vista are parallel upgrades, but in fact that's not true. 2007 will run on XP systems and has been taken up rather more rapidly than Vista itself. "Office 2007 is ramping up much faster than any previous version of Office, and the expectations for the next year are even more aggressive," Jumpp says.

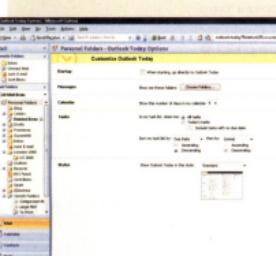


Office 2007 pros and cons



One minor nuisance with Office 2007 is that it continues to check whether your software is valid (that is, not pirated) every time you access online document libraries.

As well as introducing a new file format, Office 2007 allows saving in older formats, as well as other frequently used options like PDF (though you need to download a plug-in for the latter).



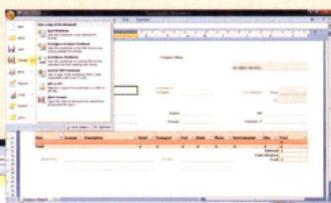
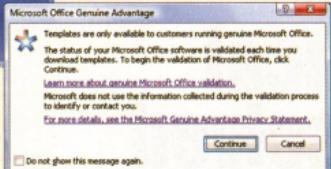
Major changes in the Office interface mean it's not simply a matter of rolling out the new software. "We find that some users who are very experienced in the current version of Office find getting used to the new ones slightly more difficult," she says.

"Because the user interface is so different, you need to plan for training, especially for more efficient users. With the very different user interface they have to spend more time finding all those features. It's best to organise training a week or 10 days after deployment and for another month after that."

FORMAT CHALLENGES

Whenever Microsoft updates the native formats used by its Office applications,

The Ribbon groups tools together on tabs for common tasks, but even with its multiple options not everything can be found in one place. Table editing tools are split between the Insert, Design and Layout tabs, for instance. This is why training is so vital.



Outlook 2007 only uses the Ribbon on email-editing windows, but does sport a new Today home page that you can customise.

a period of confusion and chaos tends to reign. While the basic file format for Office hadn't changed for close on a decade, Office 2007 altered them entirely.

While potentially inconvenient in the short term, the new formats (which distinguish themselves by adding an X to the end of the file type — DOCX for Word, XLSX for Excel, PPTX for PowerPoint —) had several advantages. Using a structure that essentially combines ZIP files with XML, they're smaller, easier for third-party developers to read and less inclined to become corrupted. If everyone upgrades to Office 2007, then the new format shouldn't be problematic, but in practice that doesn't always happen.

If you do have a mixture of machines running different versions of Office, you can download the clumsily-named 'Microsoft Office Compatibility Pack for Word, Excel,

Why is Office 2007 so different?

While Vista adds flashy new Aero animations, a revamped Start menu and other subtle changes, it's still recognisable as a successor to XP and those that came before it. Office 2007 has undergone a more dramatic change, removing the familiar menus and toolbars and replacing it with the Ribbon, a series of tabbed toolbars with functions grouped into different categories.

That change provoked a strong reaction from users whose knowledge of menu structures and keyboard shortcuts was rendered useless. "We got a lot of feedback from customers — they couldn't understand why we changed the interface from the old Office," Microsoft's Reed Shaffner says.

The company's justification for this change is that the number of functions in Office had become so large that the conventional menu system no longer made sense. 85% of the feature requests to the Office team were for features that existed in the product but users had been unable to locate.

"We'd hit a wall of 1,500 features in the product," Shaffner says. "We knew that users couldn't find stuff as it was. If we hit the next stage we'd have been completely unusable for people."

One of the key selling points for the Ribbon, which underwent an intensively-researched design process, was that it provides live previews of possible actions. "We wanted people to picture the end product rather than a feature," Shaffner says.

Despite the massive change it represents, the Ribbon isn't implemented consistently in all the products. That's led to some criticism, but Shaffner says it was deliberate and reflects the different roles of the products. "We want our UI to be consistent, but Excel is not going to feel exactly like Word."

Now the Ribbon necessarily to be adapted for other products. "The Ribbon may not always be the right solution. It was built to fulfil a need for products that had reached this level of complexity."

and PowerPoint 2007 File Formats'. This allows users of the 2000 and 2003 releases of those products to read the newer 2007 file formats. (The compatibility pack can be found at <http://tinyurl.com/ykums3>). If you want to embrace the new formats entirely, there are also bulk conversion tools available that can convert libraries of existing files into the newer Office 2007 formats.

A bigger problem for many businesses is likely to be compatibility problems when sending files to other people. You can use the 'Save As' option to convert the file to an older version or, if you want to change the default, go to the relevant Office application, click on the Office button and the relevant Options button at the bottom of the menu (Word Options in Word, for example). Select the Save option and choose the relevant older file format (Word 97-2003 in Word, for example). ☺

HELP STATION



SUPPORT



Q & A / SYSTEMS / CONNECTIVITY / APPS / COVER DVD

Your technical problems solved

SOFTWARE

Virtual Machine in Linux

I've installed UserOS Extreme and have been using it as my main OS for a month now. I dual boot it with XP. I've found alternative software for nearly everything I use and only use XP for one or two programs. So what I'd like to do is run XP on a virtual machine inside Ubuntu but the Virtual Machine Shop 2 on the August DVD is a Windows .exe file. Is there a version for UserOS yet? I was going to download VirtualBox and try that. Do you think

I should, or will you be making a version of VMS2 available soon?

— Terry Green

The plan was to produce VMS2 for both Windows and Linux but unfortunately, I just didn't have time to get both versions working. If I get time, I'd love to be able to actually integrate what will probably end up as VMS3 into the next UserOS operating system so that it's ready to go out of the box. All you'd need to do is install the UserOS operating system, start up VM3, create a virtual machine, drop in your Windows XP install disc and create your own Windows virtual machine. That

said, VirtualBox would definitely be worth a look. Sun Microsystems has put this together and it's not a bad option. It can create and run virtual machines so it's a step up from VMware Player. Just remember — VirtualBox's licence is personal use/evaluation only.

— Darren Yates

HARDWARE

Powerful power supplies

I'm about to order a new computer for work with an ASUS GTX 260 TOP/HTDP/896M graphics card. The power supply that's being installed is a Corsair

OFFICE APPLICATIONS

Status bar is missing

I'm not able to see the status bar in Microsoft Excel 2007. Can you tell me how to display it so I can use the calculators that appear on it?

— Sarah Baker

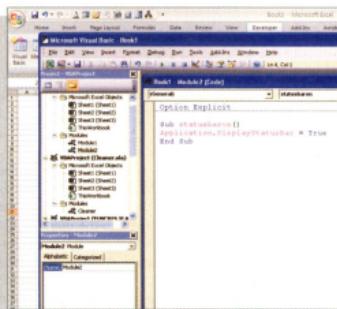
I can't find anywhere in Excel where you can turn the Status Bar on and off. In Excel 2007 in the View menu there's a Message Bar button which is disabled by default and only appears when a message appears and there's no Status Bar option. So, you can't enable it from the Excel 2007 interface itself. That said, you can enable and disable the Status Bar using a Visual Basic macro and that's what I suggest you do. To do this, click the Office button in Microsoft Excel, choose 'Excel Options', and from the Popular collection enable the 'Show

Developer Tab' in the Ribbon option and click OK. This displays the Developer tab, giving you access to Macros.

Click the Macros button and type the macro name StatusBarOn (all as one word), select the 'Personal Macro Workbook' (or Personal.xlsb) from the 'Macros In' list and click Create. This will give you the Visual Basic Editor. Even if you're not familiar with the editor, this step is very easy. On the screen you'll see a line **Sub StatusBarController()** and a line **End Sub**. Between these two lines type this single line of code:

Application.DisplayStatusBar = True

Close the Visual Basic editor by choosing File → Close and Return to Microsoft Excel. Click the Macros button and this time you'll see a macro called StatusBarController. Click this macro and click Run to run it. This will display your Status Bar. In future, if for any reason your Status



Create this simple macro to redisplay the Excel 2007 status bar.

Bar disappears you can run the macro again — you won't need to recreate the macro to do so.

— Helen Bradley

GRAPHICS

Masks in Photoshop Elements

I have some images that are greyscale masks. I'm using Photoshop Elements and I'm unable to get these masks to work. Do they only work in Photoshop, or am I doing something wrong?

— Tim Davidson

You should be able to get greyscale masks to work just fine in Photoshop Elements, although they're easier to use in Photoshop. Elements doesn't support 'Layer Masks' for regular layers, but it does support masks for Adjustment and Fill layers so we can use these as a workaround solution. To do this, open the photograph you want to apply the mask to and the mask image itself. Rotate the mask to the same orientation as the photograph and then resize the mask to match the image by clicking the mask image and choose Image → Resize → 'Image Size'. With the 'Image Size' dialog open in front of you, click the Window menu and click on the name of the photo to match the size to the foot of the Window menu. This sets the Image Size dimensions to match your photo. Click OK. Click on the mask and choose Select → All to select the entire mask image and choose Edit →

Greyscale masks can be applied using filled layers in Photoshop Elements.

Copy to copy the mask. Return to the photo and choose Edit → Paste to paste the mask into a new layer in the image.

Make sure the Layer palette is visible — choose Window → Layers if it isn't. Add a new fill layer by choosing Layer → 'New Fill Layer' → 'Solid Color' and select White as the fill colour and click OK. This will white out your entire image. Select the greyscale mask layer and Ctrl-Click on the layer thumbnail to make a selection of the black area. Hide the mask layer, click the

'Layer Mask' thumbnail for the Fill layer to select it, set Black as the foreground colour and press Alt-Backspace. This applies the greyscale mask as a mask on the white layer. Everywhere the black colour is in the mask, the layer underneath shows through the white fill. While I've suggested you use a white fill, your fill layer can be any colour you like, including black. The mask layer itself is where the work in masking the image is performed.

— Helen Bradley

450W. Is this adequate for the display adaptor? The system will also have a Core 2 Quad Q6600 processor and 4GB of memory.

— Robert Pendegast

According to Nvidia, the company that makes the graphics chip inside the ASUS card, you're supposed to go for a 500W power supply as a minimum. Personally, I would be tempted to not worry about the extra 50W but for two things — first, you're going for the overclocked version of the GeForce GTX 260 (that's what the TOP version is) and that means it's going to use even more power than a standard GTX 260. Secondly, you're choosing a Core 2 Quad Q6600 processor and 4GB of memory.

To be honest, I'd consider rearranging this system a bit. If you're planning to use this system for gaming, then the quad-core CPU isn't really going to be much use to you. Certainly not more so than a higher-clock speed, newer generation 3GHz Core 2 Duo E8400, which you'd get for about the same price. The E8400 will deliver more overall performance than the Q6600 because of its considerably higher clock speed and if you're planning on gaming at somewhere near 1,920 x 1,200 pixels with that card, the card is your limiting factor, so a quad-core CPU won't help.

I'd be tempted to ditch 2GB of memory (you'll only get the real benefit of 4GB if you

go for a 64-bit version of Windows Vista) and put the cash towards a case with a 550W power supply instead.

So, to sum up my answer, a Core 2 Duo E8400 with 2GB of memory and a case with a 550W power supply should be a better balance and cost you about the same as your original quote.

— Darren Yates

INTERNET

Telstra compatible?

Thanks PC User for all your work on UserOS Extreme 8.04. It looks like just what I've been waiting for. I've installed it on a 3.6GHz Pentium D Dual Core computer with 320GB hard drive and 2GB of RAM. My only stumbling block is connecting to the internet. I have a Telstra Turbo 7 Series Modem (Sierra AC880U) with Telstra Mobile Broadband data

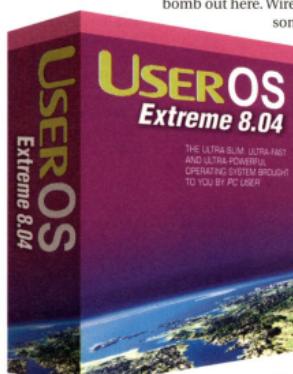
pack. The software that comes with this modem is for Windows OS or Mac OS. I've contacted Telstra, but they seem to have no support for Linux. I'm hoping you might be able to point me in the right direction. Also, thanks for a great magazine — I've been reading it from cover to cover for the last three years. Before that, I knew absolutely nothing about computers!

— Roger Bolas

Great to see we've been able to help, Roger, but unfortunately, I think we're going to bomb out here. Wireless modems aren't

something Linux does all that well yet. I managed to find one user who got that modem working with the Fedora 9 version of Linux. You can read how at www.gdt.id.au/~gdt/stories/telstra3g2008/ but it's not for the faint-hearted and it may not be the same procedure for Ubuntu. But if you can follow the process, it should be possible.

— Darren Yates



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SOFTWARE

Dialup dilemma

Firstly let me thank you for story on UserOS and Virtual Machines which I found worked brilliantly, save for one problem, namely that the modem in this laptop (a Toshiba Satellite) is a software modem and the Gnome PPP application does not seem able to detect it. Is there a solution to this problem, other than buying an external modem which I am reluctant to do? I particularly like Ubuntu and Linux in general and would love to get them operating. Incidentally, given the fact that I'm over 70 and can get the system going says heaps for your well-constructed system.

— Tom O'Donald

Unfortunately, this is the recurring nightmare at the moment for Linux users — modems. The problem is that there are few generic modem drivers around and with the world moving quickly to broadband, development of dialup modem drivers isn't taking centre stage. Most of the requests we've had as far as UserOS support goes has been for dialup modem drivers. Given the various types of dialup modem available — chip-based, host-based or 'Win-modems' and so on — it's going to be difficult to get a solution happening. The first thing I recommend is checking with Toshiba and seeing if they have a Linux driver for your modem. My guess is they don't but you never know. After that, try to find out the specific make and model of the modem and see if there are any Linux drivers online. The fact that yours is a software modem might make things harder as the software is more critical to getting it going. Without the more complex software required by this type of modem, you might have run out of luck I'm afraid.

— Darren Yates

INTERNET

Newsletter as HTML

I run a small web site for our computer club and we have monthly newsletters available on the website for members to download in both Microsoft Word and PDF format. I want to make the newsletter available to read online as an alternative to downloading it. I use Dreamweaver MX 2004 to author the web site. It has a feature to import Microsoft Word documents so they can be added to the site. I've tried this with no success as the formatting of the newsletter is changed in the final result because our editor uses text boxes in

EMAIL

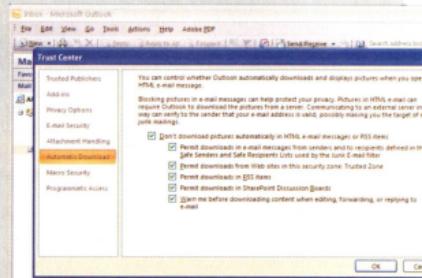
Outlook images

I use Outlook 2003 for email and I subscribe to a number of email newsletters. I notice that if I download my email and disconnect from the internet before opening the newsletters there are no advertisements. On the other hand, if I open the newsletter while I'm online the advertisements appear in it. This means that the ads are downloaded at the time of opening the email which would indicate that the sender would then know that I've opened the email. Is there any way I can stop this from happening without disconnecting from the internet?

— A Adams

In Outlook, you can stop the program from downloading images by disabling this feature. Choose Tools → Options → Security tab and click the 'Change Automatic Download' settings.

Here you can select the 'Don't download pictures or other content automatically in HTML email' checkbox and click OK. In future you can still download the images if you want to by clicking on an image and selecting to download it.



You can prevent download of images to Outlook by adjusting the security or trust settings.

You can also select to allow content from specific senders by enabling the 'Permit downloads in email messages from senders and to recipients defined in Safe Senders and Safe Recipients Lists used by the Junk Email Filter'. To add all your contacts to your safe senders list choose Tools → Options → Preferences tab, click the 'Junk Email' option and then 'Safe Senders' tab. Click the 'Also trust email from my contacts' checkbox.

In Outlook 2007 the security tab options have been moved to the 'Trust Center'. To access these, choose Tools → 'Trust Center' → 'Automatic Download' and you'll find the same options listed there.

— Helen Bradley

Microsoft Word to lay out the newsletter. Can you help?

— Ray Schaffa

I've looked at your newsletter, and the layout is causing all your problems. Multiple text boxes in a newsletter don't translate well to HTML when imported as a Dreamweaver file. It does slightly better if you convert the newsletter to a web page using Microsoft Word by opening the newsletter and choose File → 'Save As Web Page' and make sure to select a single .html page. However the results are still pretty awful and the text boxes are littered all over the page in places. If you are serious about approaching the task this way you may need to rethink how you lay out the newsletter. Replacing the text boxes with a table based layout may make the transition to HTML easier. You would leave narrow blank rows and columns to mimic the borders between the existing text boxes and place text in the large cells. However, if you're not

creating the newsletter yourself, that may be another problem.

A workaround solution would be to print your Word document as a series of GIF images one image per page. As your document does not have a lot of images in it and as it is basically a white background and some black text, it would translate well. GIF images save to very small file sizes. You could then place the images on your web page so they can be read. You can do this in a number of ways including installing a printer driver that will convert a .doc file to an image file format in the same way you're used to printing the document. Check out the shareware Ultra Image Printer at www.ultrashareware.com/ultra-image-printer.htm. It can print a Word document as a .jpg, .bmp, .gif or .tiff file and there's a trial download you can use to test it. While the trial only prints three pages, they were very good quality and quite small file sizes for their very large overall dimensions. If you

halved the dimensions in your graphics software, you'll reduce the file sizes exponentially. Because this is a printer driver, the tables and everything on the page stay exactly where they're put. It will mean that text on the pages on the web won't be selectable but presumably anyone interested in doing that would be happy enough to download the PDF version. Another option is a free service like www.zamzar.com, which will convert Word files to PNG format image files that can be displayed on the web. You could also open and convert the .png files to .gif files very easily in any graphics program.

— Helen Bradley

WINDOWS

SP3 needs SP1?

I'm about to do a clean installation of Windows XP Professional, and mine is one of the early retail discs with no Service Pack (SP) included. I saw in a forum that you need to install SP1 before you can install SP3. Is that correct? Before when I've done a clean installation of Windows, I've always applied only the latest SP, and this has worked fine. I definitely know you can install SP3 in a clean installation of Windows 2000 Professional.

— Stuart Takeo

The short answer to your question is yes. The longer answer is you need to apply either SP1, SP1a or SP2 before you can apply SP3. This is despite most of Microsoft's documentation, which implies otherwise. For instance, the download sites for the SP3 network installation package at <http://tinyurl.com/XPSP3net> and ISO CD-image file at <http://tinyurl.com/XPSP3ISO> both say "Windows XP Service Pack 3 (SP3) includes all previously released updates for the operating system."

This update also includes a small number of new functionalities, which do not significantly change customers' experience with the operating system, and Supported Operating Systems: Windows XP Home Edition; Windows XP Professional Edition; Windows XP Service Pack 1; Windows XP Service Pack 2. This says to me that you should be able to apply SP3 to a clean installation of XP, which isn't the case.

Although Microsoft has routinely required that you apply SPs sequentially (first SP1, then SP2, then SP3...) for other products, such as Office applications, this is the first time in my experience that an SP for Windows has not been cumulative.

Cumulative in this context means that SP2 contains new updates in addition to

everything contained in SP1, SP3 contains new updates in addition to everything contained in SP2 and so on. When SPs are cumulative, you only ever need to apply the latest one for a clean installation of the operating system. Ironically, SP2 is cumulative, and you can apply this SP without first applying either SP1 or SP1a.

Note: SP1a is not an update for SP1. They are identical except the latter doesn't install Microsoft virtual machine, due to a disagreement between Microsoft and Sun Microsystems over the licensing arrangements.

The only documentation I've found that even hints at SP3 not being cumulative is at <http://support.microsoft.com/kb/322389>, where it says you need either SP1a or SP2 installed before installing SP3. Even that is misleading, because SP1 is quite sufficient. If you don't have the SP1 file or CD, you can download SP2 from <http://tinyurl.com/WinXPSP2>. Finally, if you want to order SP3 on CD, you can get it from <http://tinyurl.com/WinXPSP3CD>, where there's no charge for the disc, but shipping costs are \$14.95 for standard mail (2-4 weeks) or \$27.95 for international courier (1-3 weeks).

— Link Harris

OFFICE APPLICATIONS

Formatting millions

I have an Excel chart with data that is numbers in the millions. The numbers along the Y axis are huge

they take up a lot of the chart space. I've found that I can divide all my data values by one million, create a hidden column for this data and use that as the Y axis but it seems very cumbersome. There should be a better way — how do I edit the text on the Y axis to get it neater?

— Genene Azzopardi

The way to do this is to format the Y axis of your chart in the same way you'd format any cell in your Excel worksheet. Use a format that truncates the numbers from 12,000,000 to 12M, for example. To do this, right-click the Y axis and choose 'Format Axis' from the shortcut menu. Click the Number tab --> Custom category. In the Type area type this value #,### and click OK. The numbers down the Y axis will be reformatted to a shortened format and the chart will otherwise remain unaltered.

— Helen Bradley

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HELP STATION > Q&A

Q & A / SYSTEMS / CONNECTIVITY / APPS / COVER DVD

WINDOWS

HD PVR network

I have a desktop PC (Athlon 64 3200 with XP Professional), an Acer AS 5920G-3A2G16Bn laptop with built-in 802.11a/b/g/draft N Wi-Fi and an Epson Stylus CX5300 MFP with USB connection. In the near future I'm looking to purchase a 'Naked' phone service, which I can get through my exchange, and a networkable HD PVR. I currently use a non-wireless NetComm NB1 ADSL2+ Modem Router. I want to get wireless laptop access to the internet, emails and the MFP (just for printing) independent of the PC (with PC turned off), and the ability to send media files between the PVR and the PC and/or laptop. I'm new to networking and would appreciate your advice as to whether with modern routers it's possible to do all of this concurrently. What I mean is can you be on the internet on both computers, send a media file to the PVR from the PC, do a print from the laptop, and be making a 'Naked' phone call all at the same time? What hardware would I need?

— Eddie Cartewh

Provided you choose the hardware wisely, you should be able to do all of that and more. You're spot-on to suggest that a new router would be the heart of your system, and the type you need is called a wireless router with print server. There are two points to watch when purchasing the router. First, the printer will now connect directly to the router, which should handle 'ordinary' printers designed to

work with the standard Windows printing system. These are called host-based or GDI (graphical device interface) printers, and not all print-server routers support them. Also, many routers that do handle these printers only support certain models, so this might be the incentive you need to update your MFP (multi-function printer) to one with the faster USB 2.0 interface.

The second point for the router is networking speeds. For streaming media, which is where you will benefit most from high speed, it would be ideal if the router supported Draft N wireless, to match the top speed of your laptop, and 1Gbps Ethernet for the desktop, which would need a new network card to match. Second best, and probably much easier to find, is 802.11b/g wireless and 10/100Mbps Ethernet. The other consideration here is whether you want a wired (Ethernet) or wireless connection to the HD PVR (high definition personal video recorder). Whichever you choose, the top speed should match the corresponding speed of the router, and again, HD PVRs with either draft N wireless or 1Gbps Ethernet may be hard to find.

Although you may be able to adapt your existing modem/router to feed the new one, you will probably need a new ADSL 2/+ modem to go between the router and the phone line. Your mention of a 'naked' connection must mean you intend switching your phone service to VoIP (voice over

Internet is better with Naked DSL

internet protocol). If so you'll also need an ATA (analogue telephone adapter) to connect between your telephone handset and the router. Some VoIP providers supply these, either separately or packaged with the ADSL2/+ modem. An example of the latter is the Belkin F1P1242Enau voice modem/router (<http://tinyurl.com/5rjwja>), which gives you automatic fallback to a landline phone connection in case the power fails or the internet is unavailable.

You can use VoIP either with ADSL on your current landline connection or with naked DSL. Whereas with the latter you won't be on phone line rental fees, you also forfeit your landline telephone connection. This means no conventional faxing, no backup dialup internet and no landline phone for emergencies if VoIP goes down.

— Link Harris

OFFICE APPLICATIONS

Combobox in Excel

I want to be able to create a list in Excel so it's embedded in a cell. I want to be able to click on an item in the list and to have it appear in a different cell in the worksheet. Can you help?
— A Criso

This can be done using a Form tool. Begin on a blank sheet in the workbook and insert the data that you want to appear in the ComboBox. For example, you might list the months of the year from January to December down column A. Select the cells containing the months, and name the cells by choosing Insert → Name →

Define, then type the word months as the name and click OK. Switch back to the worksheet in which you want the ComboBox to appear, and choose View → Toolbars → Forms to open the Forms toolbar.

Locate and click the ComboBox control, and drag in the worksheet to create your ComboBox. Right-click the control and choose 'Format Control'. Click the Control tab and in the 'Input Range' box, type the word months, as this will point the ComboBox to the list of months that you've saved on the other worksheet. Into the 'Cell Link' box, type a cell reference — this is a number indicating the selected month's position.

You'll want the month's name rather than the number so link to a hidden cell

or the one directly under the ComboBox. This will be hidden by the ComboBox. Select '3D Shading' if desired and click OK. Now click away from the ComboBox and click it to view the drop-down list and to make a selection. When you do, a number appears in the cell link cell.

To extract the correct month name from this number, click in the cell in which the month name is to appear and type this formula (assuming that the cell link cell is B6): =INDEX(months, B6)

Change the B6 in the formula to the address of the Cell Link cell. This cell will now show the month name. Using a named range for the ComboBox list lets you place the list on a different worksheet to the worksheet you're using to extract the data.
— Helen Bradley

Slipstream SP3

Link Harris explains how to create a bootable XP installation CD with SP3 already applied.

If you regularly install or reinstall Windows, you'll know it's a pain to work through the installation, only to suffer the supplementary slugs of reapplying one of the early Service Packs (SPs) followed by SP3. Slipstreaming, introduced with Windows 2000, is a technique for integrating SPs with the Windows installation files to produce a single installation package.

Freeware nLite (from www.nliteos.com or on this month's cover DVD) lets you slipstream an SP and create a bootable ISO CD image file from the resulting installation package. You can then burn that file to a CD with most current burning software, including freeware CDBurnerXP (from www.cdburnerxp.se or on this month's cover DVD).

Slipstreaming SP3 usually involves a double slipstream because you first have to slipstream SP1, SP1a or SP2. However, users have reported problems after slipstreaming SP3 into SP1 and SP1a, so we recommend slipstreaming SP2 before SP3.

You can use an XP CD with no integrated SP or one with SP1, SP1a or SP2. If your XP CD already has SP2 integrated, that simplifies the slipstreaming because you only need to do a single slipstream for SP3. Here's how to prepare for it using nLite:

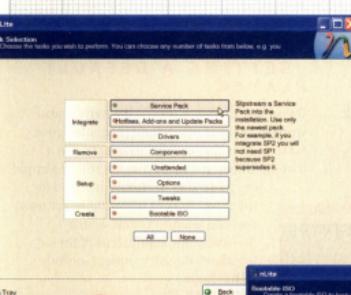
- 1 Create a folder called 'XP Installation Files' and copy across the contents of your XP CD.
- 2 If the CD doesn't have SP2 integrated, you need an SP2 CD, or the network installation package WindowsXP-KB835935-SP2-ENU.exe, which you can download from <http://tinyurl.com/WinxPSP2>.
- 3 You also need an SP3 CD or WindowsXP-KB936929-SP3-x86-ENU.exe. Download this from <http://tinyurl.com/XPSP3net>.

TOP TIP

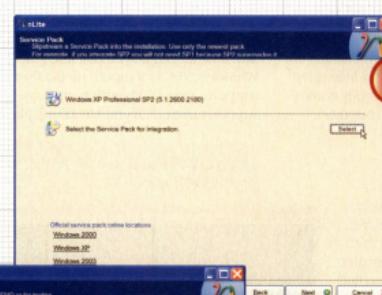
Not for OEM CDs

Many OEM XP CDs, particularly those from Dell, HP and other large manufacturers, are slightly different from retail XP discs. The OEM version may have missing files or selected updates that are automatically installed when you run XP Setup. Such OEM CDs may not be suitable for slipstreaming.

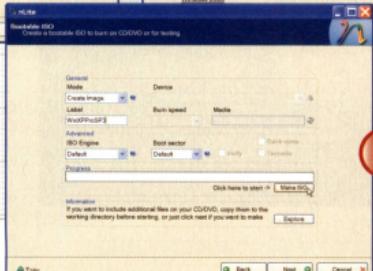
stepbystep SLIPSTREAM SP3 WITH NLITE



1 Open nLite and click Next at the Welcome screen. Click the Browse button on the 'Locating the Windows installation' screen, browse to the 'XP Installation Files' folder, select it and click OK → Next. Click Next at the Presets screen and then 'Service Pack' → Next on the 'Task Selection' screen.



2 Put your XP SP2 CD in the drive and close the Welcome screen when it appears. On nLite's 'Service Pack' screen, click the Select button, browse to XPSP2.exe and click Open. Click Back when slipstreaming has finished. On the 'Task Selection' screen, choose both 'Service Pack' and 'Bootable ISO' and click Next. Then, click the Select button, browse to WindowsXP-KB936929-SP3-x86-ENU.exe and click Open.



3 Click OK to clear the Success window then click Next. On the 'Bootable ISO' screen, change the Label from WinXP to something more meaningful such as WinXPProSP3 (no spaces allowed) and click 'Make ISO'. Choose where to save the ISO image, give it a name and click Save. When the ISO creation has finished, click Next → Finish and burn it to CD.

Linux's video playback options

Linux comes with a wealth of tools to create, cut and play all forms of media, explains **Ashton Mills**.

Ubuntu, and Linux in general, is a superb platform for multimedia, and when it comes to playing video, there are a variety of players to choose from. Each player has its own strengths in terms of ease of use and features. By default, Ubuntu ships with the Totem media player, but this isn't the only one in the Ubuntu repositories. Here are some of the better alternatives, all of which can be installed from the Applications → Add/Remove menu.

MPLAYER

Mplayer is a very popular player and its simple right-click menu (on the playback screen or on the controls) makes it easy to play files, VCDs and DVDs and to toggle common options like double-size and aspect ratio. Its DVB support is good, but doesn't properly handle DVD menus like Xine does. However, it's easier to configure than Xine with the Preferences dialogs easily laid out and not overwhelming with options. Mplayer is a great alternative to Totem with more features and a better interface for managing your media playback, and optionally comes with a powerful encoder (MEncoder) to create or shift formats.

XINE

When you search for 'Xine' in the Add/Remove dialog you'll actually get two choices: gxine, which is the Gnome front end for Xine, and the Xine back end for Totem. The former installs a GUI similar to Mplayer, and makes it easy to play files, VCDs, DVDs and even DVB (digital TV) broadcasts. It's not quite as pretty as Mplayer, though it does the job. Where Xine excels, however, is in its comprehensive configuration options, its post-processing effects and its ability to handle DVD menus. If you don't mind sticking with the default options or leaving the configurable settings on 'Beginner' (there are four levels, from 'Beginner'

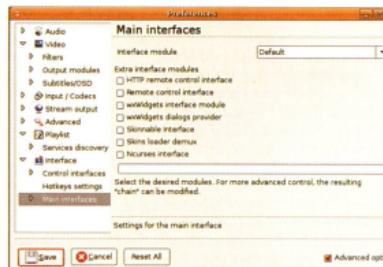
to 'Master of the known universe!'), you'll be fine, unless you really want to see just how far the rabbit hole goes.

As Xine has excellent format support, the second option of installing the Xine back end for Totem means you can take advantage of Xine's features while sticking with the simplified Totem front end. Note, however, when doing this you need to do one more step: click Applications → Accessories → Terminal, type in **sudo update-alternatives --config totem** and then press '2'. This should be automated in a future version of Ubuntu. Either way, be sure to also install 'Xine extra plugins' package to play an even wider variety of media formats.

VLC

VLC, aka the VideoLAN Player, is another great open-source media player and, to boot, it's cross platform as well — aside from being available for Linux, you can also grab it for Windows. VLC has superb media format support, plays DVDs with menus and supports both DVB and streaming playback.

With the Xine back end for Totem, DVD menus will work.



VLC's options are easier to browse and tweak than those of Xine.

And, as its name suggests, can even do so over a network.

Its preferences are laid out better than Mplayer and Xine, and there's still plenty of options to tweak, but it doesn't have as extensive post-processing support as Xine. However, unless you know what you want to do with them, chances are you don't need this anyway. VLC is another worthy alternative to Totem, and a great choice if you want a 'fire and forget' player.

SETTING A DEFAULT PLAYER

If you install one of these alternatives and want to make it the default player for your system, how do you tell Ubuntu to use it instead of Totem? Currently, there's no simple

way to do this (it should be fixed for the next Ubuntu release) but for now, you can use the Gconf-editor (basically, the equivalent of the Windows Registry under Gnome). Here's how:

- 1 Press Alt-F2.
- 2 Type in **gconf-editor**.
- 3 Browse to desktop → Gnome → 'Volume Manager'.
- 4 Tick the box under **autoplay_dvd**.
- 5 Under **autoplay_dvd_command**, change **totem %d** to **vlc %d** or whichever player you want to launch.

Be careful about playing around with options in here — just like the Windows Registry you can break your system with the wrong setting.



Beware of new power sockets

Darren Yates warns about a new issue with the latest high-end graphics cards that may end up costing you money.

The latest high-end graphics cards are showing up a number of disturbing trends that I think need to be addressed.

Having recently tested a bunch of GeForce GTX 280 graphics cards, I can't say I was all that impressed to see yet another external power adapter socket on these cards. One was bad enough and two six-pin PCI-E sockets is a bit over the top but now the latest GTX 280 cards come with two sockets — a typical six-pin socket and a new eight-pin socket.

What really ticked me off was when I opened up a couple of these cards to find a note saying you'll need a PC power supply with an eight-pin power connector to make this card work. And to make matters worse, it's not the same eight-pin connector that's used for some motherboards (sometimes known as the EPS12V connector).

In the past, graphics cards always came with adapter cables that connected up to spare four-pin Molex hard drive power connectors. This was based on the very realistic assumption that your PC's power supply may not have one, let alone two, of these PCI-E power connectors. But being told you need a new power supply isn't what you want to read when you've got the card home.

BUT A SIX-PIN CONNECTOR FITS

Making this even more interesting is the fact that we've heard reports of users being told to slot in a six-pin connector offset into the socket and that it should work.

Yes, you can fit a standard six-pin PCI-E power connector into an eight-pin socket by using six of the eight socket pins, but we can definitely tell you it does not work. We tried it with several GTX 280 cards and on every occasion, the card (and PC) simply wouldn't start. So don't bother trying it.

Check for the latest drivers

If you've just picked up a new GeForce GTX 260 or 280 card, make sure you keep heading over to the Nvidia web site and looking for new updated graphics drivers. Nvidia is notorious for improving performance of its graphics cards long after they've been released and with the GTX 260 and 280 cards so new, you can just about bank on performance improvements being extracted for a little while yet. You can get the latest downloads from <http://tinyurl.com/2ot2y8>.



WATCH OUT! Get a powerful PSU

The GeForce GTX 280 graphics card is one of the most thirsty cards we've seen to date and even the GPU manufacturer, Nvidia, is recommending users have at least a 550W power supply unit (PSU) inside their PC before trying to start one of these cards.

If you're trying two of these cards in SLI mode, our recommendation is to get yourself at least an 800W power supply. As we've found, it's not uncommon for one of these cards to consume between 200W and 250W when running at full tilt so, to ensure your power supply can power the rest of your system, make sure it meets the minimum requirements.

In the table below, you can see the difference

in power consumption of three new cards in a Core 2 Duo E8500 desktop PC. The results show the system power consumption at the default Windows desktop and the peak consumption during three game tests — *Half Life 2: Lost Coast* (HL2LC), *Crysis* and *Unreal Tournament 3 Demo* (UT3Demo).

Given the GTX 280 saw a system-wide peak of 224W during *Crysis*, it gives you a good idea of what you need in terms of power supply to keep a card like this going.

SYSTEM POWER CONSUMPTION

	MSI N280GTX-T2D1G	Leadtek WinFast GTX260	MSI R4850
GPU	Nvidia GeForce GTX 280	Nvidia GeForce GTX 260	ATI Radeon HD 4850
Default system power (watts)	107.3	105.9	107.8
System Peak (HL2LC - watts)	265.3	225	210.5
System Peak (Crysis - watts)	331.7	252.7	212
System Peak (UT3Demo - watts)	296	247	207.6
Peak difference (watts)	224.4	146.8	104.2

THE GOOD NEWS

There is some good news, however. The better retailers should be able to offer you an adapter cable that links either two six-pin PCI-E connectors or two four-pin Molex hard drive connectors to an eight-pin connector. This does work but unfortunately, you can't tell by simply looking at the box whether the adapter cable is included inside or not.

If it's not, you'll likely have to pay extra for it but no more than \$10-\$15, which is

considerably cheaper than forking out for a new power supply. If you already have a gutsy-enough power supply, there's no reason why you should have to replace it simply because it doesn't have the right power connector.

So make sure you check the contents of the graphics card box first and sight the eight-pin adapter cable. If you don't, you may end up with a rude shock when you get it home. ☺

Converting video files

Nathan Taylor explores the intricacies of playing the files you download.

For the last couple of issues we've been talking about Vuze, the P2P program formerly known as Azureus. This week, we're going to talk about how to take video files downloaded from Vuze and convert them to play anywhere. In fact, this guide should help you turn most of P2P's weird and wonderful video and audio formats, like OGM, MKV and WMV, into more commonly supported formats.

DEALING WITH .MKV FILES

Video files on Vuze are downloaded in an unusual format. If you check your completed download directory you'll notice that most of the video files will have an MKV extension (short for Matroska Video). This is a file type similar to AVI in that it contains video and audio mixed together. Unfortunately, your computer probably can't play the files using any software other than Vuze. Windows Media Player, for example, doesn't natively support .mkv files. Very few network media players and set-top boxes will handle the MKV format either, so you won't be able to watch the files on your Xbox 360, TiVo, PlayStation 3 or DivX-capable DVD player, for example.

There is a way around this. There are tools you can download that will allow you to play .mkv files in third-party players like Windows Media Player, and other tools that will help you convert the files into something that's more widely supported.

Let's start with playing the file. The simplest solution is to download a media player that natively supports the MKV format. VideoLAN VLC media player (www.videolan.org) is a popular player that can do just that. You can drag and drop the .mkv files right into VideoLAN.

Or, if you'd rather use your existing media player, you can download and install the Haali Media Splitter from here: haali.cs.msu.ru/mkv/. After installation you should be able to open .mkv files just fine in Windows Media Player. If the file still won't play, you may need to install a Windows decoder for the video embedded in the .mkv file such as ffdshow (sourceforge.net/projects/ffdshow-trunk), which we've talked about several times before.

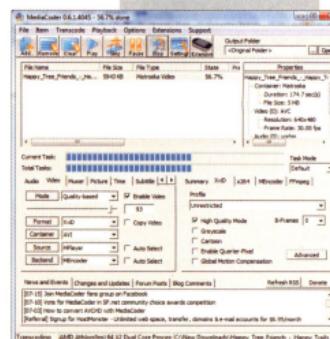
Converting the files to something that your set-top box or portable media player

The real Shareaza

As part of our P2P Superguide in our September issue we listed the web address of Shareaza as www.shareaza.com. It turns out that's not correct. Well, not exactly. Earlier this year a company called Discordia used legal threats to effectively take over the Shareaza domain and web site. It then released its own software that it called Shareaza from the site hoping to use the brand to attract users. It also hijacked the original Shareaza's update service so Shareaza users would be 'updated' to Discordia's version. The good news is that the original, 'real' Shareaza still exists, and can be found at shareaza.sourceforge.net. It's currently at version 2.3.1.0. We strongly recommend that anybody who installed the Discordia version uninstall it and download the superior and less suspicious version. Thanks very much to our readers who wrote in to let us know about this deception.

can play is a little more challenging. You only need one application: MediaCoder (www.mediaCoderhq.com), but getting the right settings can be difficult. We don't have the space here to go into all the intricacies of MediaCoder, but you can leave most of the settings at default. We would suggest you then go to the bottom-left-hand panel and click on the Video tab. Select the Format Xvid, the Container AVI and the Mode 'Quality-based' with the slider on 90-ish or Two-pass

MediaCoder can convert Vuze's .mkv files to other, more usable formats.



at around 1000Kbps. Also uncheck the 'Auto Select' for Source and Backend, and choose MPlayer and MEncoder respectively in those two fields.

Now drag and drop your .mkv files into MediaCoder and click the Start button. The conversion process will begin, and when it's done the download folder should contain an .avi file that you can play on most DivX-capable media players.

MediaCoder, of course, can handle more than just .mkv files. It should be able to handle most unencrypted media file types you throw at it. If you find something in OGM, WMV or another video or audio format you'd like to convert into something better supported by your various media players, MediaCoder is your go-to program. ☺

Suggested MediaCoder settings

If you're not an expert in video coding, MediaCoder can be a little daunting. To make things simpler for you, here's a quick list of suggested encoding settings that should provide you with decent-quality video that's highly compatible with various media players and won't take up too much space. You can leave most of the settings alone, including the default MP3 audio, but go to the bottom-left panel and click on the Video tab. Now change the settings to these:

Mode: Two-pass, set at between 1000 and 1500Kbps for standard definition video.

Format: Xvid

Container: AVI

Source: (Auto Select)

Backend: (Auto Select)

Note: using the 'Auto Selector' for Source and Backend will work in most cases. It might have trouble with some .mkv and other files, however, depending on the type of compression used. If a file fails or transcodes extremely slowly, try manually setting MPlayer as the source and MEncoder as the back end, as we suggest doing for files downloaded with Vuze. When you've set these, you can drag and drop your video files over to MediaCoder, press the Start button and it should create a new, transcoded file for you in the same directory as the original.



Video streaming

Got a lot of videos on your hard disk? Put them to good use with VLC media player, says **Henry Winchester**.

Like the quiet kid at school who goes on to be a mighty PC journalist, there's a tiny program probably installed on your PC that's capable of incredible feats. VLC is the Firefox of media players — rock-solid, open-source, free and completely customisable. So far it's been used for everything from beaming videos from space to generating ASCII-art versions of video files. But its most overlooked core feature is its ability to stream video over a

network. VLC was originally created for this purpose by students of the École Centrale Paris, but when they realised they had created a versatile media player they chose to set it free on the net. The video streaming functionality is perfect for home networks — it's incredibly easy to set up and can even be used for streaming music. It can also be used with the multitude of Linux systems pre-installed on Eee-style netbooks and

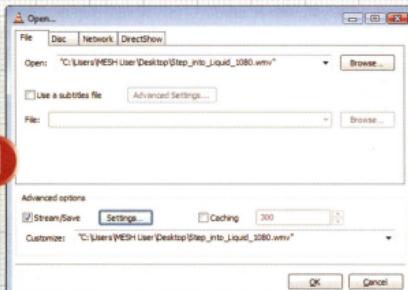
Macs. That's not all it can do: one handy (albeit potentially migraine-inducing) feature is its ability to display a video as your Windows wallpaper, simply by opening a video, right-clicking on it and clicking **Wallpaper**.

So, next time you turn on your system, open up VLC, play around with it and show it some love. It's probably the most underappreciated program on your PC.

stepbystep HOW TO STREAM NETWORK VIDEO

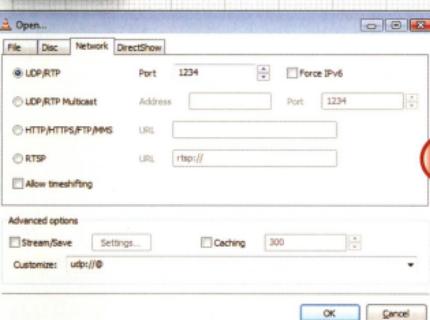
First, grab the IP address of the PC you want to stream to by pressing **Windows-R**, then typing **cmd**. Enter **ipconfig** to reveal the IP address. Write that down.

Go to the PC you want to stream from, open VLC, and then go to File → 'Open File'. Click on browse to locate the video file you want to stream, then check the Stream/Save option under advanced options.



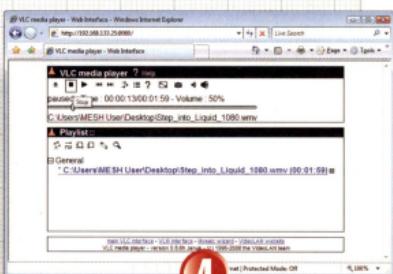
Click Settings, then check UDP and enter the IP address.

2



On the second PC, open VLC and click on File → 'Open Network Stream'. Make sure UDP/RTP is checked and the port is set to 1234. Click OK, then click Play on the source machine.

3



On the source PC, click Settings → 'Add Interface' → 'Web Interface'. On the destination PC, open a browser window and type the IP address of the source machine followed by :8080. This will let you access the web interface to allow a host of cross-machine interaction.

Port forwarding via satellite

Link Harris explains how to enable port forwarding on a satellite modem.

If you have a satellite internet connection, there could be an extra step if you want to set up an FTP server (see *PC User* October, page 64, for the other steps). Like many satellite modems, the IPSTAR IPX-3200 supplied by Westnet (www.westnet.com.au) includes a hardware firewall and NAT router. In addition to configuring your router to forward the ports the FTP server needs, you must forward the same ports in the satellite modem.

Just as you configure your PC for static TCP/IP settings if you want to forward ports to it from your router, you must change your router's internet TCP/IP configuration from automatic to fixed IP address before you can forward ports from the satellite modem. To do this for a Linksys WRT350N router:

- ➊ Open the browser-based setup utility and click the Status tab → Router subtab.
- ➋ In the 'Internet Connection' section, record 'IP Address', 'Subnet Mask', 'Default

Gateway' and DNS addresses. These values are provided by the satellite modem's DHCP server. For this tutorial, this IP address is called the 'ISP' IP address of the router.

- ➌ On the Setup tab → 'Basic Setup', drop down the 'Internet Connection Type' list in the 'Internet Setup' section. Select 'Static IP'.
- ➍ Fill in the fields with the details from step 2, and click 'Save Settings' at the bottom of the page. Although the details will differ, the concepts are the same for other routers.

Next, configure the satellite modem as described in the step-by-step guide below. Now you're ready to test your FTP server from a free web-based testing site such as www.web2ftp.com, www.g6ftpserver.com/en/ftptest or <http://surftip.com/index.htm>. Another change from the procedure in the October feature is the way you update DynDNS (<http://DynDNS.com>). You can't use DDNS (dynamic domain name system)

Satellite troubleshooting

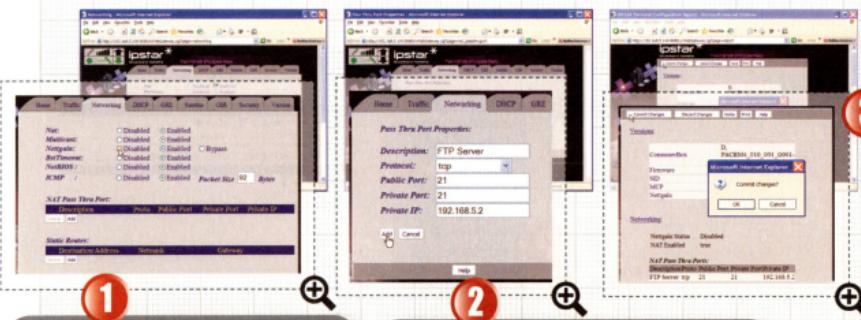
Check whether your satellite modem is preventing internet access to your PC by temporarily eliminating other possible blockages. Disable the PC's firewall and bypass your router by connecting directly from your PC's network card to the satellite modem. Remember to change the port-forwarding IP address in the satellite modem from the fixed 'ISP' address of the router to your PC's static IP address.

on your router because it isn't connected directly to the internet. If your satellite modem supports DDNS (the IPSTAR doesn't), you can enable it there. Otherwise, install 'DynDNS Update Client for Windows' from <http://www.dyndns.com/support/clients> or from last month's cover DVD.

The procedure in this tutorial allows you to operate an FTP server through an IPSTAR satellite modem but the transfer speeds are slow. You'll need to disable NettGain (www.flashnetworks.com), since the current incarnation doesn't support port forwarding. It doesn't perform well with the latency inherent in satellite and wireless connections.

To speed up the link, NettGain replaces TCP with BST (boosted session transport) protocol (<http://tinyurl.com/5vtjxa>). To see the effects, check your before and after upload and download speeds at <http://whatismyip.com/speedtest/index.asp>.

Step by step CONFIGURE PORT FORWARDING FOR AN IPSTAR IPX-3200 SATELLITE MODEM



1

2

3

Open your web browser, type <http://192.168.5.1:8080/WebGateway.cgi> into the address bar and press Enter. Then click the Networking tab, keep the default username Admin, type **password** into the Password field and click the Submit button. Opposite NettGain, click Disabled.

Click the Add button in the 'NAT Pass Thru Port' table shown in step 1, type **FTP Server** (or whichever description you prefer) in the Description field and keep **tcp** in the Protocol field. Next, enter the port you want to forward in both the 'Public Port' and 'Private Port' fields, enter the 'ISP' IP address of your router in the 'Private IP' field and click the Add button. Then repeat this entire step for each port you want to forward.

Click the 'Print\Apply Settings' button at the bottom of the screen in step 2. Then click the 'Commit Changes' button at the top of the screen shown. Finally, click Yes to clear the confirmation pop-up. The satellite modem will now save the changes and reboot.



Using effects in Reaper

Last month we saw what music program Reaper could do with audio loops. This month Philip Moore examines how to use effects.

Audio effects are things like equalisation (EQ), reverb, dynamic compression and so on. All are designed to alter or enhance audio in some way. Most music software will have some of these effects built in, and you can add more using one of several plug-in standards. The two most common are VST and DX (DirectX).

In the August issue of *PC User* we went through the process of installing into Reaper any VST or DX plug-ins you have on your system. Let's put them to use.

ADDING EFFECTS

I'll use the demo song 'Making Me Nervous' again just to make things quicker. All the tracks have an 'FX' button and most of these are coloured green. This indicates that an effect has been added to that track. Click one of the green FX buttons and a dialog will appear that shows the effect(s) used.

Click the Add button at the bottom and it displays all the effects and instruments installed on your system that Reaper recognises. If you have some third-party VST or DX effects pick one — say a reverb. Choose VST or DX, not VSTi or DXi. The 'i' versions are for virtual instruments and we'll get into that another time.

You can play back your song and hear the effects you've added to a track applied in real time. Change the sliders and controls of the effect and hear your audio change instantly as the song plays back. Solo a track using the 'S' button to better hear what you're doing. Uncheck an effect in the chain and you disable it (without deleting it) so you can hear your track before and after for a comparison.

You can stack as many effects as you like into a track. Just be aware that each new effect eats up system resources and processing cycles and could cause playback problems if you have too many running.

There's no standard set of controls for effects of this sort. It depends what type of effect it is and who made it. The built-in VST Cockos effects are pretty good generally, offering simple and fast interfaces. The EQ in particular seems very good, but we didn't like the reverbs.

TRACK FOLDERS

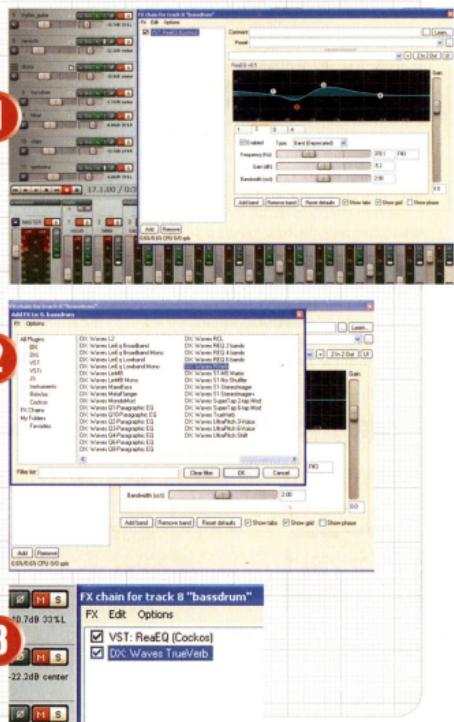
Most music software uses a system called

stepbystep ADDING EFFECTS WITH REAPER

Click the FX button to bring up this dialog. From here you can add or remove VST or DX effects and manipulate them in real time as your song plays.

Click the Add button and you'll see a list of all the effects on your system supported by Reaper. Select any one and click OK to add it to your effects chain.

Effects are applied in the order they appear in the chain. Drag them up or down to change the order and you might dramatically alter how they affect the sound. Uncheck an effect to disable it. Use the 'S' (Solo) button on the track to hear it on its own.



busses. These are special tracks that you send the output of other tracks to because you want to treat them as a group. Reaper does this, but actually makes the concept simpler by creating track folders. For example, in the demo song there's a folder called 'drums'. You can tell 'drums' is a folder because the folder icon is highlighted and it has a three-bar icon at the far left. This behaves like a standard cascading folder display, and within this

folder are all the tracks that make up the drum kit. You can create a new blank track and clicking the folder icon.

A folder is just like an audio track, but all its controls for volume, pan, mute and so on function on all the tracks under it. This means you can control their levels with a single fader, or add a reverb to them all at once.



SUPPORT

Dreamweaver extensions

Helen Bradley explains how to find, download, install and use a Dreamweaver extension.

Since its inception, the web has fostered a spirit of community. Users help each other find solutions to problems and ways to add extra functionality to popular programs, and share with or sell to other users. This month we'll look at Dreamweaver extensions.

A good place to look for extensions is the Adobe Exchange site at www.adobe.com/fusion/exchange/. Click the Dreamweaver link and browse the extensions. Check out the 'Highest Rated' extensions, and to find free ones, click Filter → Freeware.

In the collection on the screen, you'll find extensions ranging from those enabling you to create a photo album, to ones that make custom menus. There are form-checking extensions, and even one that implements a PayPal shopping cart.

Many of these have been around for a long time, so to help you determine whether the extension will work with your version of

Dreamweaver, look at the date the solution was developed. Typically, more recent versions of Dreamweaver will support extensions designed for earlier versions, but if you're using an earlier version, it's unlikely that extensions designed for CS3 will work for you. Look at how many downloads there are for an extension, and its rating. A high rating is an indication that the extension meets its promise and does what it's supposed to do, and it's easy to use.

The extension we'll use for this tutorial is Layer AniMagic by PVII. This extension installs as a Behavior into Dreamweaver, which animates a layer on the screen. We'll use it to move a photo off the screen to reveal another photo below.

To download the extension from the Adobe site, click its Download button. Sign into your Adobe account, or create one if you don't already have one.

On the cover DVD

You'll find the video version of this tutorial on this month's cover disc.

Download the extension to your computer, making note of where you save it. It's a good idea to create a folder for your Dreamweaver extensions so they're easy to find, and you can add that folder to your backup routine.

You can find other extensions by the same developer by clicking the extension name and visiting the author's web site. For example, the developer of the extension we're using here offers others for free, and an updated version of the one we located on the Adobe site. It's a better option to download the one from the author's site because of this.

To install the extension, double-click the downloaded .mxf file and then step through the installation wizard. Restart Dreamweaver to finish the installation. Note any instructions that appear in the 'Adobe Extension Manager' dialog.

Step by step USE A DREAMWEAVER EXTENSION



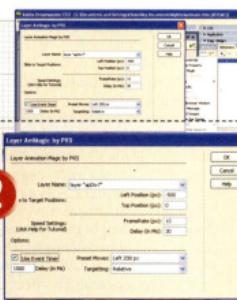
1

On a web page, add an image inside an AP Div by clicking Insert → 'Layout Objects' → 'AP Div' to create a layer on the page. Click inside the layer, go to Insert → Image and place an image in the layer. Repeat and add a second image in a second AP Div tag.



2

Go to Window → Behaviors, click the plus sign and choose 'Studio VII' → 'Layer AniMagic by PVII'. Select the 'Layer Name' of the topmost AP Div tag and click the 'Use Event Timer' checkbox. From the 'Preset Moves' list, choose 'Left 200px', set the 'Left Position' to a value larger than the image and click OK.



3

Preview the page in your browser. Click the image to display the animation effect. If you find you no longer want an extension to be installed, run Adobe Extension Manager CS3 from the 'All Programs' menu and remove it.

The video is just the beginning



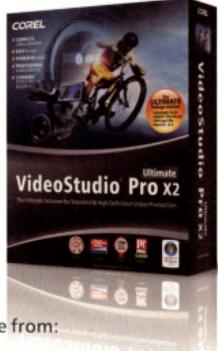
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Create a fancy background

Helen Bradley shows you how to create a desktop background image in Photoshop.

There are lots of opportunities to use your Photoshop skills to create practical solutions for everyday use. This month we'll create a desktop background image. Along the way, you'll see how to create repeating patterns, run a page curl action and add drop-shadows to layers. The image on the right shows the desktop you'll create. It has a background that looks like a school notebook, and displays a calendar and a photograph.

To make this image, go to File → New and set it to the size of your monitor (ours is 1,280 x 1,024 pixels). Set the Resolution to '72 pixels/inch', the 'Background Contents' to White, select 'RGB Color' and click OK.

For the lined background, create a second document with the same settings, except this one should be 200 x 200 pixels in size. Working on this small document, click the Pen tool, set the foreground colour to blue, click the Line option on the toolbar and select the 'Fill Pixels' option. Hold the Shift key as you drag a horizontal line across the top of the image. Zoom the image to 100%, select the 'Rectangular Marquee' tool and make a long, thin vertical selection, starting just above the blue line and including a portion of the white background (this will become the interline spacing). Go to Edit → 'Define Pattern' and type a name for it, such as **BlueLine**, and click OK. Discard this image.

Return to the main image and click Layer → New → Layer → OK. With that layer selected, choose Edit → Fill and, from the Use drop-down list, select Pattern. From the 'Custom Pattern' drop-down list, select the last pattern in the list (which will be the one you just created). Click OK. The image will be filled with a series of lines. Select the 'Rectangular Marquee' tool, make a selection around the top two lines and press Delete to remove them.

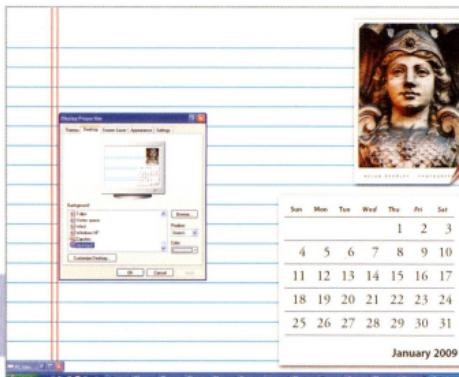
This is the desktop image we'll create inside Photoshop.

Set the foreground colour to red. Choose Layer → New → Layer and click OK. Again, select the Pen tool, click the Line option and 'Fill Pixels'. Hold Shift as you drag a vertical line from top to bottom of the image. Repeat and add a second line, close to the first.

Locate a calendar — we used the one from the Office column on page 90, but you can use any one from your desktop or online. View at the desired size and capture a screenshot of it by pressing the PrintScreen key. Return to Photoshop and go to Edit → Paste to insert it as a new layer in the image. Click the 'Rectangular Marquee' tool and select around the edge of the calendar. Choose Select → Inverse and press Delete to remove everything except for the calendar. Move the calendar into position using the Move tool. With the layer still selected, click the 'Add a Layer Style' button at the foot of the Layers palette and select 'Drop Shadow'. Increase the Size value, reduce the Distance value and click OK.

The curled edge photo is created using a downloaded action. In Photoshop, open a photo, visit <http://tinyurl.com/57bzdk> and download the PanosFX Page Curl action. Unzip the files, copy the .atn file to your C:\Program Files\Adobe\Adobe Photoshop CS3\Preset\Actions folder and copy the .grd file into your C:\Program Files\Adobe\Adobe Photoshop CS3\Preset\Gradients folder. If you're using a different version of Photoshop, choose the folder for that version.

Go to Window → Actions and click the Palette fly-out menu. Choose 'Load Actions' and navigate to the folder in which you stored the .atn file. You won't need to do this in future as it will appear in the Actions



list in the Palette menu once you restart Photoshop. Click the PageCurl action, ensure the correct image is selected and click Play. There are three stops in the action and you need to perform a task at each stop. Each action includes some information and the web site has more detailed examples. You also need to add shadows and gradients.

When you're done, click the topmost layer in the image and press Ctrl-Alt-Shift-E to create a flattened version. Drag and drop this layer into your desktop image. To size it, press Ctrl-T and then Ctrl-0 (zero). Size and place the image in position. To copy the drop-shadow from the calendar layer, right-click it in the Layers palette and choose 'Copy Layer Style'. Select the image layer, right-click and choose 'Paste Layer Style'.

Save the image as a .psd file so the layers are retained and you can edit it later (a new calendar, for example). Save the image again as a .bmp file for use on the desktop. To add the image to your desktop, right-click an empty area, select Properties → Desktop tab and click Browse. Locate and select your image, click Apply and then OK. 



The page curl effect is created using a downloaded Photoshop action.



On the cover DVD

You'll find the video version of this tutorial on this month's cover disc.



Making Excel macros

Helen Bradley shows how to use a macro instead of performing the same actions repeatedly.

There's little point in doing things repeatedly if you can have your software do the work for you. Macros are a handy way to get Excel to do some of the work of creating spreadsheet elements. In this month's column, we'll look at how to create a macro by recording it and how to view the recorded macro statements so you can make minor changes to the code.

RECORD THE MACRO

Start in Excel with a new worksheet and click in a cell to select it. The macro we'll record will type your name and format the cell containing the name. Start by choosing Tools → Macro → 'Record New Macro'. Type a name for the macro, for example MyName. Macro names should be single words with no spaces and should not start with a number. From the 'Store Macro In' drop-down list choose 'Personal Macro Workbook'. Set up a shortcut key for running the macro.

'Your Personal Macro Workbook' is a workbook that Excel creates for you if you don't already have one. Excel also opens and closes this workbook every time the program is launched or you exit it. This is the place to store macros which are suitable for using in most workbooks. For macros that relate only to a particular worksheet, choose the 'This Workbook' option from the drop-down list and click OK.

Excel is now recording your keystrokes, so type your name in the current cell and press the checkmark key on the Formula Bar instead of pressing Enter on the keyboard. With the cell still selected, apply a format to the text, for example, select an attractive font, font size and colour. Go to the Format menu and choose Column → 'AutoFit Selection' to adjust the column width so it's wide enough for the name to appear in the cell without overflowing into the

column next door. As you've now finished recording this macro hit Tools → Macro → 'Stop Recording' to finish.

RUN THE MACRO

To run your macro, create a new worksheet, click in a cell and choose Tools → Macro → Macros. This displays a list of macros that are available to you. From the 'Macros in dropdown list' choose your 'Personal Macro Workbook' which is Personal.xls in Excel 2003 and earlier versions. Click the macro name in the list and hit Run. Your name will now be inserted into the current cell and it should be formatted as you set it to appear.

The macro will be saved by Excel in the 'Personal Macro Workbook' as you exit the program. It will be accessible to you at any time from the Macros list and you can also run the macro by pressing the shortcut key that you set up when you recorded it.

On the cover DVD

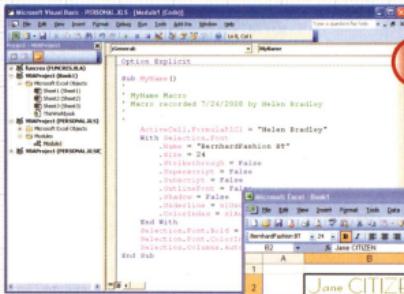
Check out the video tutorial on this month's cover disc to see Helen Bradley record and edit an Excel macro.

stepbystep MANUALLY EDITING A MACRO



1

To see what's been recorded, choose Tools → Macro → Visual Basic Editor. Locate the VBA project list on the left of the screen. If it's not showing, choose View → 'Project Explorer' to display the results.

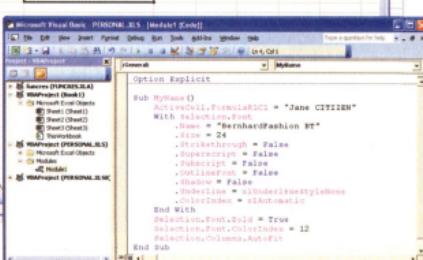


2

In the VBA project list, locate your Personal.xls file, expand the Modules entry below it and locate Module1. Double-click this and the code of your macro will appear on the screen. This is the code detailing the steps you performed, written out in Visual Basic for Applications.

You can make changes to the macro code by typing in different information. For example, to change the name that's typed into the cell, type over the name in the quotation marks. Run the macro again to test the results.

3



Word's clever calendars

Helen Bradley creates a personalised photo calendar in Word.

It's the time of year when your thoughts turn towards Christmas and organising presents. A photo calendar is a great idea — it lets you combine your photographic know-how with your computer skills to create a very personal gift. This month we'll show you how to create and format a calendar using Word's Calendar Wizard.

The starting point for the calendar is the Microsoft Word Calendar Wizard, which has been around for years. It comes installed with many versions of Word, but you can find it online too by choosing File → New → 'Templates on Office Online'. 'Select Calendars' → 'Other Calendars' and look for the Calendar Wizard. Download it to your computer — it's compatible with versions of Word from 2000 onwards.

When the wizard launches you'll be prompted to configure the calendar options. Choose the banner style and select the paper orientation. If you choose Portrait orientation for the calendar you'll need photos that are in landscape orientation and vice versa. Select your orientation, then click the prompt so the design has room for photos in it.

Select the first and last months you'd like in your calendar, click Next and then Finish. The calendar is created automatically. To add photos, delete the placeholder images and, if desired, the AutoShapes they're stored in. Select Insert → Picture → 'From File' and choose an image. If you like, click Crop and crop the edges so it fits in the available space.

The calendar can be customised by editing the appropriate style. We removed

On the cover DVD

In this month's video tutorial Helen Bradley steps you through the process of creating this calendar and setting up the formats that make redesigning it easier.

the black background and selected a smaller, plainer font. We converted the text back to horizontal by selecting it and clicking Format → 'Text Direction'. We removed the shape with the year in it and typed the year after the month in its box. The border around the table can be removed by right-clicking it and choosing 'Format AutoShape', then choosing the 'Colors and Lines' tab and setting the line colour to 'No Line'.

To finish the calendar, create a cover page by adding a page to the document with a large photo on it. Add a text box over the photo and type the year and any other information into it. If you plan to bind the calendar with spiral binding, for example, move the elements on the pages down so they're well clear of the binding area.

Step by step FORMATTING YOUR WORD CALENDAR

Word calendars are formatted using styles. To see the styles used, go to Format → 'Styles and Formatting'. Click on a page element and its style will show in the taskpane. Click the dropdown list to the right of this style and click Modify to change it.

Modify the styles for areas of the document you want to change, and all pages will update to match. The months have extra formatting applied, which you'll need to strip out by selecting the text and pressing Ctrl+Space Bar. Do this before you change the style.

2

The days are in a table that can be formatted with a custom AutoFormat. Select Table → 'Table AutoFormat' and click New. Create a table format called Calendar and set the 'Even Row Stripes' to have a top and bottom border. Apply this to all the tables in the document.

3

Avoiding worksheet errors

Make sure your OpenOffice.org spreadsheets are error free, **Helen Bradley** explains.

The major concern you should have when creating a spreadsheet is that it's accurate. Spreadsheets are often used for financial calculations and other important data, so it's critical that the results are correct.

One way to identify problems in a worksheet is to colour spreadsheet cells according to their contents. So, for example, formulas can be shown in one colour and data in another. This helps you to determine quickly if a cell contains data when, in fact, it should contain a formula. To do this, choose Tools → Options → 'OpenOffice.org Calc' and click the View option. Click the 'Value Highlighting' checkbox and then OK. Now values will appear as blue entries and formulas green, so it will be obvious if a cell contains a number when it should contain a formula.

If you're curious about a formula and need to know more about the cells that contribute data to it, double-click the cell containing the formula and you'll see it displayed in the cell. The cells that it refers

to will be highlighted and each will have a coloured border. Each cell referenced in the formula is coloured a different colour to other cells, making it easy to identify. This allows you to see instantly if there are problems in the formula (for example, if it relates to cells it shouldn't relate to).

You can also drill down in your formulas using the Tools → Detective options. The features on this menu help you track the flow of data in your worksheet. For example, click a cell that contains data used in a formula and go to Tools → Detective → 'Trace Dependents'. You'll see markers indicating the cells that depend on this data for their results. This helps you determine where data is being used in a worksheet.

Click on a cell that contains a formula and choose Tools → Detective → 'Trace Precedents' — this shows the cells that contribute to that formula. The option works in a stepped way so the first cells you see are those that are directly related to the formula. You can see the precedents at the

MACROS OF THE MONTH

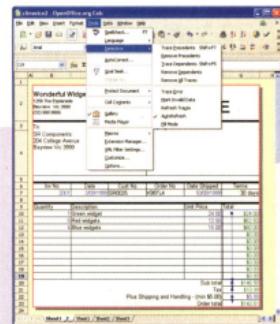
This month's Word macro creates a table containing a month's calendar for you automatically. When you click to run the macro, you'll see a dialog from which you can choose the calendar month to create, the first day of the month and the number of days in the month (for February).

When you click 'Create Calendar', Word inserts a table into the document and merges the cells in the top row into one. The name of the month appears in this cell and the days of the week are added to the next row. Then, the day numbers are created in the table cells. The user form that runs the macro contains a combo box from which you select the month and set of option buttons that control the first day of the month.

A case statement determines the number of days in each month. If the month is February, then an additional set of option buttons appear from which you can choose

28 or 29 days. You can customise the macro, for example by typing three characters for each day of the week and adding formatting attributes to the table cells. Find the macro in the document PCU_Calendar.doc on the cover disc.

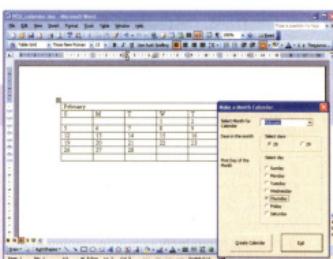
The Excel macro gives you a collection of handy statements you can use in your own macros. When you create your own, you'll often need to determine the type of item a cell contains so you can act on it appropriately. The methods for determining a cell's contents vary. So, for example, the statement for determining if the cell contains a formula isn't written the same way as the one you use to determine if it's empty. There are also different tests for whether a cell contains text or whether it contains a date or a number. These differences can be confusing, so we've gathered all the options together for you in one place. The macro shows a basic



Using the Trace Precedents option you can identify where a cell gets its data from.

next level if you perform the same action a second time around.

To clear the arrows, go to Tools → Detective → 'Remove All Traces'. You can also use 'Fill Mode', which is a tool that automatically identifies precedents to a cell when you click on that cell. To do this, choose Tools → Detective → 'Fill Mode' and your mouse turns into a paint bucket. Click the paint bucket indicator on a cell to see the cell precedents. ☐



This month's Word macro inserts a calendar table for a given month and start day.

structure for determining if a cell contains text, a formula, date, number, or if it's blank. It also returns the cell address, whether or not it has a comment and the number of cells in the current selection. The information is then reported back to you. The macro is contained in a file called testCellContents.xls on the cover disc. The worksheet includes a test area with a series of filled cells you can click on to test the macro.

Smarter doodling

Helen Bradley shows how to add extra functionality to last month's VB application.

Last month, we created a simple doodle application to draw lines in a picture box. Now we'll add extra functions to the project including a save feature, smarter continuous drawing and the ability to select a colour and line width. Start by adding this to the Declarations area of the project:

```
Dim myColour As Color = Color.Blue
Dim myBrush As New Drawing.SolidBrush(Color.Red)
Dim myBrushWidth As Integer
Dim continuousFlag As Boolean
```

To the end of the **Form1_Load** event handler, add these two lines:

```
DrawGraphics.Clear(Color.White)
myBrushWidth = 4
```

The first line is required to overcome a problem saving the doodle. Without it, the saved image will have a black background, so this line of code solves the problem by ensuring a white background for the image.

Add two radio buttons inside a group box. Change RadioButton1's **Text** property to **Continuous** and RadioButton2's **Text** property to **Line by Line**. Set the **Checked** property for the second radio button to **True**, as it is the default setting. Add this code to your **PictureBox1_MouseDown** event:

```
If RadioButton1.Checked Then
    continuousFlag = True
End If
```

This is part of the new continuous drawing feature, which sets the **continuousFlag** variable if continuous drawing is selected. Add a new **PictureBox1_MouseMove** event and add this code to it:

```
If continuousFlag Then
    DrawGraphics.SmoothingMode = Drawing2D.SmoothingMode.None
    DrawGraphics.FillEllipse(myBrush, e.X, e.Y, myBrushWidth, myBrushWidth)
    PictureBox1.Image = DrawBitmap
End If
```

This 'draws' by painting a series of filled ellipses along the mouse path. The technique is such that the faster the mouse moves, the more distance there is between the ellipses.

In the **PictureBox1.MouseUp** event, replace the **drawMyLine()** statement with this code:

```
If RadioButton1.Checked Then
    continuousFlag = False
Else
    drawMyLine()
End If
```

Now we have two drawing options: one is the new continuous line and the other is last month's line-drawing tool. The setting of the **continuousFlag** variable ensures that the continuous line is drawn only if the left mouse button is depressed and the mouse is moved. Drawing ceases as soon as you let go of the mouse button, but will start up again when you press the button and move it again.

Add this as a last line in the **Button1_Click** event handler: **DrawGraphics.Clear(Color.White)**. This is the same code as you added to the **Form1_Load** event and is needed to ensure the PictureBox has a preset background colour (in this case, white), so the colour is saved when you save the doodle. This code manages the new drawing when you press the Clear button.

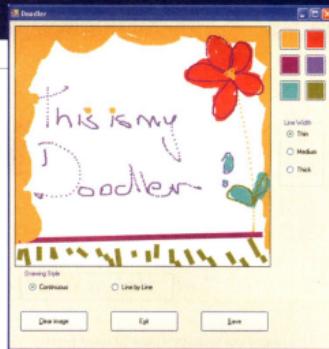
Add a new button (Button3) and set its **Text** property to **Save**. Double-click the button and add this code to its **Button3_Click** event handler:

```
Dim SaveFileDialog1 As New SaveFileDialog()
SaveFileDialog1.Filter = "bmp files (*.bmp)*.*"
If SaveFileDialog1.ShowDialog() = DialogResult.OK Then
    PictureBox1.Image.Save(SaveFileDialog1.FileName, System.Drawing.Imaging.ImageFormat.Bmp)
End If
```

This accesses the Windows 'Save File' dialog to make it easy and quick for you to save your doodle. Where possible, use Windows dialogs instead of coding the solution yourself — the Windows dialogs make projects look great, they save you time and effort and they are familiar to users.

To control colour, add six small buttons to the form. Set each button's **BackColor** property to a colour from the Web tab and note your selection. This is what you'll set the pen and brush to when the colour

Added code this month lets us draw freehand lines, change colour and line weight and save the doodles.



The updated doodler application adds extra functionality to last month's project.

is selected. For each button, set its **Text** property to nothing, as you want colour, not words. Use the Format → Align → 'Make Same Size' and 'Vertical and Horizontal Spacing' options to adjust the spacing of the buttons so they look neat. For each button, add this code to its **button_click** event, adjusting the colour name as required:

```
myPen.Color = Color.Turquoise
myBrush.Color = Color.Turquoise
```

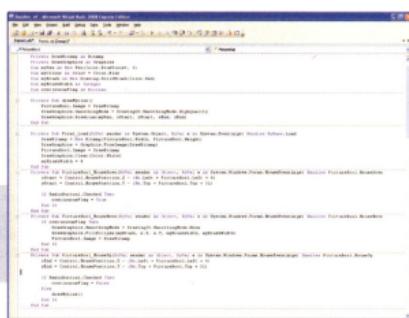
Finish the form with another GroupBox (set **Text** property to **Line Width**) and add three radio buttons. Set the **Text** property of the first to **Thin**, the second to **Medium** and the third to **Thick**. Set the **Checked** property for the Thin radio button to **True**. Add this code to the Thin button's **Click** event:

```
myPen.Width = 3
myBrushWidth = 4
```

Do the same for each of the other buttons, using values of **6** and **7** for Medium, and **10** and **12** for Thick.

Now that you've made these changes to your application, save and run it. Click the Continuous button and click and drag to draw in the dialog. Click to change colour and line thickness, and test the save routine.

Next month we'll add extra functionality and final touches to the application. ☺





Create your own disc covers

Helen Bradley uses Ashampoo Cover Studio 2009 to create CD and DVD covers.

When you make DVDs and CDs of your own video and music, the final step is to create a good-looking disc case. Ashampoo Cover Studio 2009, free on this month's cover disc, helps you create covers for DVD cases, DVD booklets and slimline cases.

When you launch the program, select the type of case to create. From the dropdown 'Paper format' list, select the paper size to use. If you have specialist paper that's perforated for case inserts, you can select it if it appears in the list, otherwise follow the instructions below to create a paper format to match your paper.

Once you've selected the paper, click Next to continue. Depending on the type of disc you're creating a cover for, type the title and a subtitle. Select the content type from the options and the table below will change

format, depending on the type of disc. Music discs show the track title and duration for each song, a data disc displays filenames and file sizes, backup discs display the title, and a video disc has title and duration. For any of these options you can click the 'Import Disc' button and the program will attempt to import the data from a disc itself.

If you place a commercially acquired music CD in the drive, the data is sourced from internet databases. If the list cannot be automatically populated, you can type the elements yourself by clicking 'New Row' and typing in each entry. When you're done, click Next to continue.

This is where you create the cover art. On the left are options for adding images, backgrounds, text and tables. On the right are the program templates. Select a template

SPECIAL OFFER

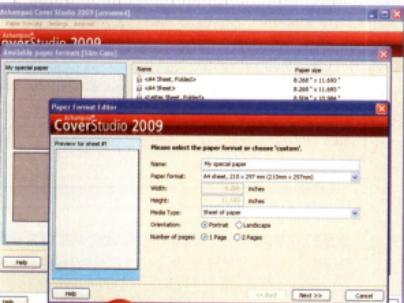
For a limited time, PC User readers can upgrade to the latest, more feature-rich version of Ashampoo Cover Studio for a fraction of the regular upgrade price. From inside Ashampoo Cover Studio 2009, click the Internet menu and choose 'Upgrade to Ashampoo Cover Studio' and you'll be taken to Ashampoo's online store.

to use by double-clicking on it — this will quick-start your design. To add the list of items you created in the previous step, click Table → 'Table of contents'. Size the table so all the data shows on the cover. You can format it by double-clicking it to open it in the table editor.

Click the 'New Text' button to add a text element to the disc. Text can be freeform or can select preset elements such as the title, content or current date. Click Background to replace the current background with an image of your choice. Click 'New Image' to add an image that can be placed anywhere on the cover.

When you're done, click Next to preview the cover you've prepared and click Print to print it. Save the project so you can edit and reuse it later on. ☺

stepbystep CREATE A PAPER FORMAT



1

To create your own paper format for printing on perforated paper, click the 'Edit Paper Formats' option opposite the case design to use. Click New and type a name for your paper type. Select the paper size and its orientation.

Click Next and choose those items that appear on the sheet. If the sheet contains two slim cases, click this option and set the number to 2. Click Next and type the measurements that describe where the case appears on the sheet.

2



Continue to describe the placement of the second item on the sheet. When you're done, click Finish. In future, you can select this format in the first step of the cover creation process so the covers will print in the correct position on your stock.

3



Find your serial numbers

With Recover Keys 1.0, you can keep track of your software serial numbers. **Helen Bradley** explains how.

When you've paid for your software, you don't want to have to buy it again if your hard disk crashes. However, if you don't have the licence keys and serial numbers for your software, you might encounter problems when you try reinstalling your programs. Recover Keys 1.0, free on this month's cover disc, offers a solution to this problem.

The situation is this: as you install most commercial software, you'll be required to type in your product serial number or licence key. These are provided to you when you purchase the software either via email (if you register a downloaded program) or in the form of a sticker on the box or disc sleeve for boxed software. Over time, it's easy to lose the emails or the disc boxes or sleeves. If this happens and your hard disk crashes, it may take with it your only record of the licence

information. Without this you won't be able to reinstall the software — you might convince the company to give you a replacement code in time, but you'll have to do the leg work to get it.

Recover Keys is a great solution to the problem as it finds and lists the keys and product ID numbers for you. It does this by extracting them from the Windows registry and other files in which it knows they're stored. All this information is delivered to you the minute you launch the program in a neat table-like interface. Here you'll see the program name, the user and company details that were entered when the program was installed, the product ID and its licence key. This is the information you need to provide when reinstalling your software. You can manage the columns that display



**SPECIAL
OFFER**

For a limited time, PC User readers can upgrade to the latest version, Recover Keys 2.0, and receive a big discount. Recover Keys 2.0 offers support for even more applications and other new features. To take advantage of this great offer, simply go to <http://recover-keys.com/order.php> and, when purchasing Recover Keys 2.0, use this coupon code: ACP3MAG.

on the screen by selecting or deselecting them in the View menu.

You should run this program before you encounter problems so you have a record of the information you need. In addition to viewing the data, you can print it or export it to a file. Exporting the data to a removable drive is a sensible choice. To do this, click the down arrow to the right of the Export button and choose to export the data to an HTML file, a text file or a comma separated file. Use HTML if you plan to view the data from your web browser. Exporting to text creates a file you can open in any text editor, and a comma separated file format is handy if you plan to record and access the information from a database or spreadsheet such as Excel. Click your choice of file formats, and select a filename and location to save it to. ☺

Stepbystep FIND YOUR LICENCE KEYS

1

To find a particular key in a long list of keys, click in the top-left cell because the Find option searches forwards. Click Find, type part or all the program name and click 'Find Next'. Each time you click 'Find Next', the program will move to the next matching item in the list.

2

3

It's wise to print and keep a copy of the list of licence keys and program IDs in a safe place. To do this, click the Print button and choose Print to send the list direct to the printer, or 'Print Preview' to check the page layout before printing.

To view a list of the software that's supported by this version of the program, go to View → 'Supported Software'. Recover Keys 1.0 can locate keys for these listed programs. Some recent software versions may not be supported.

Easy web site creation

With Serif WebPlus 8, you can have a web site up and running in minutes, says **Helen Bradley**.

When you want to create a web site, the first thing you'll need is software to create the pages. Serif WebPlus 8, free on this month's cover DVD, is a handy program for creating web sites. One of the benefits of using it is that you don't need to know anything about HTML, the coding language used for web sites. WebPlus works just like a desktop publishing program and it lets you create and format your pages without having to worry about the nuts and bolts of how the page is actually made to look that way.

When you launch the program, you'll see a menu offering options such as the web wizard, starting a project from scratch, opening a publication that already exists and viewing a quick tour of the program. The sensible place to start is with the web

wizard. From the list of template designs, select business or personal web sites and a design you like. You can recolour it later on, so choose an image you like and click Finish.

On the screen is your new home page. Complete the details for your site by filling in the boxes in the wizard on the right. Type your name and email address, and then the names for the pages you'll have on your site — there are five of these by default. Select a colour scheme using the 'Colour Scheme' option. These schemes change the colour of the text as well as the background image and other elements on the page. To navigate around your site, use the navigation bar in the bottom-left of the screen.

To start, select the home page and type the text for it in the text placeholder. To

SPECIAL OFFERS

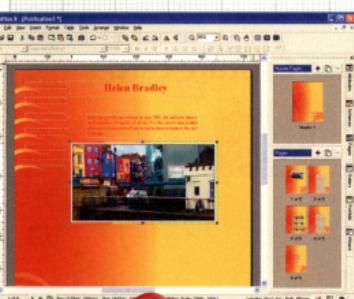
Impressed with WebPlus? Want to make your own movies too? For a limited time, you can receive a big discount off the regular price of Serif MoviePlus 5. There's also a great deal for Embellish Scrapbook Designer — the easiest way to create digital photo scrapbooks. See www.pcuser.com.au/pcuser/hz2.nst/dir/readersoffers for more information.

replace the image on your home page, double-click it and find one of your own to use. Continue to replace the placeholder text on all the pages of your site.

When you've finished designing the site, you're ready to test and publish it. Go to File → 'Preview Web Site in Browser' then select the page(s) to view. When the web site opens in your browser, check that the navigation system works and all the pages look as you want them to. If not, return to WebPlus and make your changes.

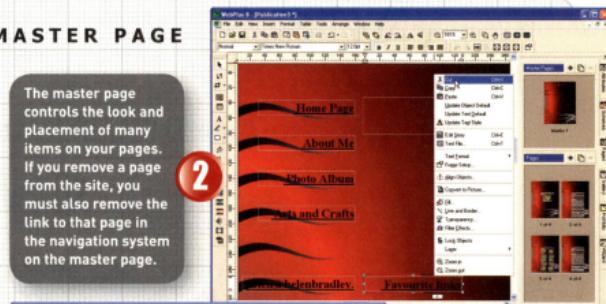
When all is complete, click File → 'Publish Site' and choose whether to publish to a disc folder or the web. If you have a site-hosting service, choose the web option and complete the details of your FTP account to upload it. If not, save it to a folder. ☺

stepbystep EDIT THE MASTER PAGE



Some of the elements that make up your web site are created on the master page, not on the actual pages themselves. To see the master page and other pages of your site, click the Pages tab down the right of the screen. Click a page to view it, or click 'Master 1' to see the master page.

The master page controls the look and placement of many items on your pages. If you remove a page from the site, you must also remove the link to that page in the navigation system on the master page.



To add a link to your blog from your site navigation system, click the master page, add a text frame and enter the text to link to. Select the text and click the Hyperlink button on the toolbar. Type the blog URL and click OK.



**Control of Your
Vista Media Center
is Only A Click Away**



VideoMate Vista **T100**

Watch Free-to-Air HDTV / Easy to use Capture card



**VideoMate Vista E900F
(COMP-E900F)**

PCIe TV/FM TV tuner card with hardware MPEG-4 encoder
• Dual hybrid DVB-T and analogue TV/FM reception



**VideoMate Vista E700
(COMP-E700)**

PCIe TV tuner card
• Dual DVB-T reception
• Advanced PIP/POP support
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PLANTRONICS EXPLORER 370

PRICE \$85 / **CONTACT** ANYWARE COMPUTER ACCESSORIES
PHONE 1300 269 927 / **WEB** www.plantronics.com.au

Working outdoors usually means you need to invest in gadgets that will stand up to a little punishment. This Bluetooth headset is just such a device — it's water, dust and shock resistant, making it the perfect companion for tough environments. A rubberised outer shell makes buttons a little harder to press than on most headsets, but it keeps out dust

and inclement weather. The rugged body has other drawbacks — the headset is a little bulkier and heavier than some models — but it's a small price to pay for a unit that stands up to the elements. Despite its extra bulk, the headset isn't uncomfortable to wear, though we found the fit a little loose around the ear. Sound quality was excellent overall. The unit

doesn't include noise-cancellation technology, but it has a wind-noise filter, which is arguably more important when working outdoors.

— Anna Raciti

PC User says: Not the most compact headset, but consider it if you need a unit that can take a beating.

Belkin's new n52te is a hybrid keyboard/mouse/gamepad device that's supposed to make controlling PC games (particularly first/third-person titles), more comfortable and convenient. It's designed to be used with your left hand (in place of the WASD keys and their neighbours) in combination with a mouse in your right. The device itself has 15 main keys, an eight-way D-pad, a scroll wheel and a profile-toggle button. Any of these can be remapped to emulate keystrokes or other button presses, and the configuration software will let you bind macros (a series of keystrokes) to individual buttons. The device's palm-rest is smooth and comfortable and the keys have a good, sharp action. The scroll-wheel also works great, with just the right amount of

resistance. On the downside, the D-pad's optional joystick insert is too slippery and the thumb button, intended to replace the space bar, is placed too far out. The n52te also offers different profiles which, at the push of a button, will change the function of all of the keys (there are three profiles available, for more than 70 actions all up). This works well, but cycling through profiles doesn't match the speed and ease of a dedicated gaming keyboard. At \$75 the n52te is also a little too expensive in our book.

— Dan Gardiner

PC User says: Some minor design issues and high price undermine this gaming tool.

BELKIN N52TE

PRICE \$70 / **CONTACT** BELKIN / **PHONE** 1800 235 546 / **WEB** www.belkin.com.au



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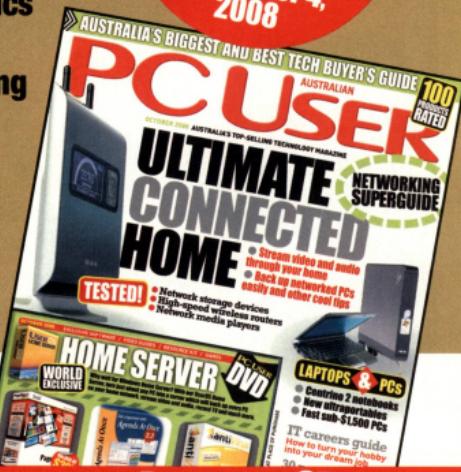
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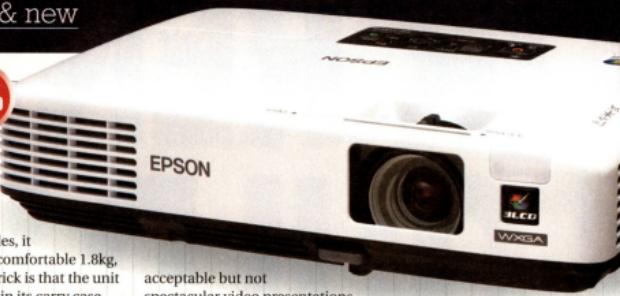
EPSON EB-1735W

PRICE \$2,700 / CONTACT EPSON

PHONE [02] 8899 3666 / WEB www.epson.com.au

Usually when you buy a portable projector, you're sacrificing quality in return for portability — and forking over a lot of cash to boot. Epson's EB-1735W carries the hefty price tag, but does a reasonable job of justifying it, with goodies such as a claimed 3,000 ANSI Lumens rating, 2,000:1 contrast ratio, Windows Vista Network Projector support, and the ability to automatically pair up with compatible Windows PCs via a

75%



supplied USB stick. On the portability scales, it weighs in at a comfortable 1.8kg, and one nice trick is that the unit comes packed in its carry case, meaning you can quite literally pick it up out of its box and everything's ready to roll. Once it's set up, it performs well, with crisp text and images for still projections — which is what this unit is going to spend its working life with, for the most part — and

acceptable but not spectacular video presentations as well. For a unit that crams that much power into such a small frame, fan noise is something of a concern; Epson rates its noise output at 30–29dB. This is a good projector for those who need something that's light, portable and can project well in both

darkened and lit areas, although those needing to show a lot of video presentations might be a touch overwhelmed.

— Alex Kidman

PC User says: Great portability and network flexibility with acceptable video.

TOSHIBA 46XV500A

PRICE \$3,400 / CONTACT TOSHIBA / PHONE 13 30 70 / WEB www.toshibaav.com.au



60%

There's some pretty stiff competition in the 46in, 1080p LCD TV market, and in recent months we've tested some standout new sets from the likes of LG and Samsung. Toshiba's offering, the 46XV500A, starts off well, producing sharp, relatively clear images. The built-in digital TV tuner gives a nearly error-free picture with high-definition streams — there's no blocking problems and very little digital mosquito noise, although standard definition video doesn't work as well. It packs a decent range of inputs, with three HDMI, three composite, VGA and component. The set's 100Hz mode works well for smoothing out motion in live broadcasts and sports, and isn't as jarring in movies as we've seen in other

implementations. Unfortunately, the 46XV500A has a bit of a problem with accurate colour reproduction. In brightly-lit or outdoor scenes, skin tones have a tendency to look unnatural and oversaturated, with purplish or yellow highlights — something we've seen in lower-end LCD monitors. The middling contrast can also leave the picture a little flat, and playing with the settings didn't do much to mitigate these problems. At this price you really do need to be offering an ultra-premium product, but this just doesn't live up to the cheaper competition.

— Dan Gardiner

PC User says: Good picture sharpness, but serious colour problems.

PANASONIC DMR-BW500

PRICE \$2,199 / CONTACT PANASONIC / PHONE 13 26 00 / WEB www.panasonic.com.au

This is one for the early adopter crowd. If you have to have your HD and record it too, then this all-in-one, twin digital HD tuner/500GB hard drive/Blu-ray recorder is just about your only option. It doesn't come cheap though. Physically, the DMR-BW500 is about the same size as a standard Blu-ray player and has a mirror front panel that hides some inputs and basic controls. On the back it has HDMI, component, composite and SCART outputs, along with

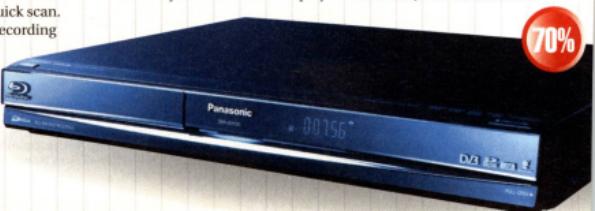
composite and S-Video inputs. We were a little disappointed that there's no high-definition input — that's a little sad given the unit's standout feature is its ability to record in HD. The HD tuners picked up all the local channels after a quick scan. There are five TV recording modes available. The longest playback offers more than 900 hours of storage on the internal

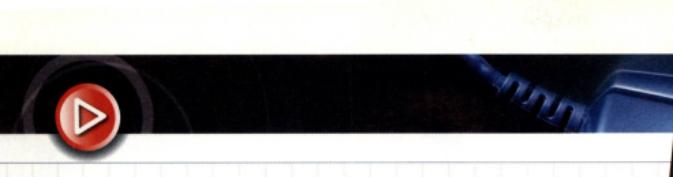
hard drive alone. You can record from two channels at once and even watch a Blu-ray movie at the same time. Once recorded onto the drive, files can easily be transferred to disc through the menu system. You can also play

back images and music from the USB port and SD card slot in the front panel.

— Nick Mallath

PC User says: Not bad, but we'd wait until HD input is included and the price comes down.





PALM TREO PRO

PRICE \$929 / **CONTACT** PALM / **PHONE** 1800 350 535 / **WEB** www.palm.com.au

The Treo Pro is quite blatantly Palm's play for the BlackBerry-obsessed corporate market; it's a Windows Mobile 6.1-based smartphone, exclusive to Telstra, with a sleek form factor, inbuilt GPS, 3G and Wi-Fi. It also doesn't hurt that this is a sleekly designed smartphone — Palm has long built good units, but they've often been functional rather than attractive. This is tempered by the fact that its sleek black casing, like most other sleek black smartphones,

is a magnet for fingerprints. The Treo Pro responded well in our tests, with good call clarity, decent data transfer and all the pluses (and minuses) of the Windows Mobile platform. One thing Palm's always been good at is battery life, and they're to be applauded for the Treo Pro, which lasted several days between recharges, something other fashionable smartphones could learn from. We did hit a few niggles that we suspect will keep the BlackBerry faithful in

RIM's pocket. We found the keyboard particularly annoying. The keys are very close together, feel slick and have a very small amount of travel, which led to constant typing errors in our testing.

— Alex Kidman

PC User says:
Nice design, but BlackBerry still does this better.



ENERMAX AURORA

PRICE \$90 / **CONTACT** EYO / **PHONE** (02) 9790 8822 / **WEB** www.enermaxusa.com



The Aurora is a premium aluminium keyboard from Enervox — a company better-known for its PC power supplies. The Aurora's primary selling point is its sleek design. It has a very low profile, only 25mm at its thickest part, though it has two sets of feet to adjust the height so you can raise the top to a comfortable level. There's no curvature in the keyboard at all, making for a very notebook-like feel. The shell of the keyboard is made from black anodised

aluminium with chrome accents but, to our disappointment, the keys were all just plastic. The keys admittedly have a relatively nice feel to them, with a short stroke and quiet actuation. Each key is rated to 10 million presses which should easily outlast the PC it's connected to. The small backspace key (which is only single-width, rather than the usual double or similar size) took some getting used to. There's a built-in USB hub, with two USB ports in the back for extra devices, and the ports are nice and easy to get to. It also has a rather neat built-in USB sound card, meaning you can plug headphones and a microphone into the keyboard while still only having the single USB connection to the PC.

— Nick Mailath

PC User Says: **A bit expensive for what's on offer, but it's got the looks.**

LEAPFROG LEAPSTER2

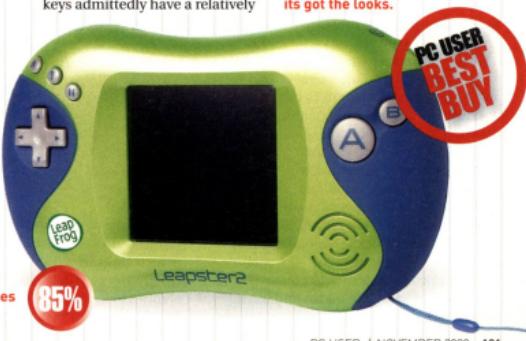
AGES FOUR TO EIGHT YEARS / **PRICE** \$129.95; ADDITIONAL CARTRIDGES \$44.95 / **CONTACT** FANTASTIC / **PHONE** 1800 660 655 / **WEB** www.leapfrog.com

The Leapster Learning Game System is back! This time it features a new online component that allows kids to extend their gaming experience in a safe environment, unlocking cool rewards such as certificates, collectibles and new games, and letting them upload the art they create on the console for display online. The Leapster2 comes with two games pre-loaded: *Creativity Castle*, where kids can use supplied line drawings and a range of colouring options to create works of art; and *Dragons to the Rescue*, comprising maths and spelling games that can be

played on four difficulty levels. With a good range of titles featuring well-known characters such as Dora the Explorer, SpongeBob SquarePants and a whole lot more, you'll easily find titles that will appeal to your child. As with the original Leapster, the games are fun to play and kids will improve their maths and spelling skills and hand-eye coordination simultaneously.

— Gail Lipscombe

PC User says: **A solid console with solid educational outcomes — lots of fun.**



A new battle

The **PC User** team takes a sneak peek at upcoming game releases, starting with the latest expansion to this popular MMORPG.

WORLD OF WARCRAFT: WRATH OF THE LICH KING **PC**

RELEASED 2008 / WEB www.worldofwarcraft.com/wrath

Wrath of the Lich King is the second expansion to *World of Warcraft* (WOW), and sees the action move to Northrend, a land to the north of Azeroth between Kalimdor and the Eastern Kingdoms. We had the opportunity to explore the quests and starting areas of this massive new zone, and even from this somewhat limited exposure, our initial impression is that Northrend has a much more epic feel to it than Outland ever managed to muster. We're not just talking about the size of the areas you get to explore, but also what's actually happening in them. There are full-on battles the moment you step outside your starting camp, with the otherworldliness of Outland being replaced by more familiar pitched battles between Horde and Alliance. The new Death Knight is a mix between a Retribution Paladin and a Mage, with a smattering of Rogue thrown in for good measure. The abilities are predominantly instant casts that draw on your runic power, so if you keep hitting one type of spell, you'll soon run out of that particular type of energy. The runes replenish quickly though, and there are enough spread between Frost, Unholy and the Blood schools to keep things interesting. The talent trees weren't implemented properly on the build we played, so we'll have to wait and see whether this is something you'll learn. Being able to explore the talent trees for the existing classes got our palms sweating that little bit harder. Titan's Grip, a new entry in the Warrior's talents, enables them to wield two-handed swords as if they were one handers, so dual-wielding two-handers is a possibility. The bottom of the Warlock's Demonology tree now offers up Metamorphosis — a spell that transforms you into a demon for a time. A demon that looks like Illidan and has its own demon spells to cast. We also got to see



Death Knights are good fun to play, but everyone is going to have one.



Northrend has a far more epic feel than Outland, and looks much better as well.



The hardy Taunka are believed to be the ancestral cousins of Taurens, only whiter.



some of the new dungeons — videos from Caverns of Time: The Culling of Stratholme (which looks simply amazing), Oculus (where you can pick flying mounts with abilities to fly around on) and the Halls of Stone (an imposing dungeon built by the

titans). One of the more interesting and intriguing announcements is the idea of 'championing' a faction. This allows you to earn a reputation for a faction by killing mobs and bosses in any heroic dungeon while wearing that faction's tabard. This is a notable improvement over the current system, where only one faction is linked to a specific dungeon, requiring multiple runs in order to hit Exalted with that faction. There's still no firm date for the *Wrath of the Lich King* and Blizzard clearly needs to get this right — just look at the problems that have plagued *Age of Conan*.

— Alan Dexter

PC User says: We're champing at the bit for this one.



GTR EVOLUTION PC

RELEASED 2008 / WEB www.gtr-evolution.com

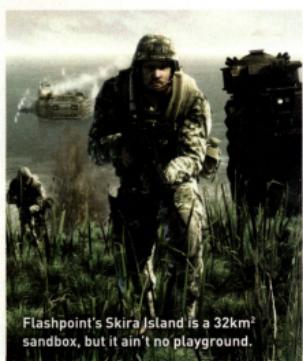
Race 07 is a brilliant racing simulator, but a combination of recognisable supercar shapes and race-tuned performance made *GTR2* that little bit more intoxicating. This expansion/re-release for *Race 07* marks the return of grand tourers; there's no official licence this time, so the developers have just cherry-picked cars they love, such as Aston Martin, Corvette and Viper. A major addition is souped-up 'Extreme' versions of World Touring Car Championship cars — 600bhp and rear-wheel drive across the board. Based on the preview code I've been playing, they're an absolute riot. This expansion mostly focuses on a new track: the famously treacherous 22.5km

long Nürburgring circuit. Unfortunately, the code I played needed plenty of optimisation if it's to run at a satisfying rate on even high-end current machinery. The gMotor2 engine looks geriatric these days; the developer needs to address this problem urgently. Why can't the PC game make use of the new Lizard engine, which powers the upcoming Xbox 360 iteration? In spite of this, it's clear that considering this is an expansion pack, *GTR Evolution's* new content is well judged to ensure interest from racing enthusiasts.

— Mike Channell

PC User says: This is a good one for racing fans.

Germany's treacherous Nürburgring circuit has been added to the game.



Flashpoint's Skira Island is a 32km² sandbox, but it ain't no playground.

OPERATION FLASHPOINT 2: DRAGON RISING PC

ALSO ON PS3, XBOX 360 / RELEASED 2009 / WEB www.codemasters.com/flashpoint2

Operation Flashpoint was a flawed masterpiece. Chunky, riddled with bugs and resource-hogging, it remained an incredible experience and quite unlike any war sim before it. This time Codemasters, with the help of its remarkable EGO engine, ensures the polish is worthy of the premise. The technological facelift means *Flashpoint 2* will be one of the most convincing simulations of modern combat around. The conflict takes place on Skira Island, just off the coast of Japan, and thanks to a heavily modified version of EGO, the entire 32km² island is rendered and visible. This means epic draw distance as you pilot helicopters around. In the original, your soldier could turn his hand to everything from commanding tanks to

piloting choppers. *Flashpoint 2* breaks up the storyline across four separate cogs in the war machine. So, you'll get a taste of the very different roles in the army, including infantry, special ops and vehicular roles. It seems the overwhelming theme is authenticity, and this reaches to every bolt and screw on the weaponry. We saw footage of a minigun from the team's reference material, and it looked like nothing we'd seen before. We're extremely excited about this one. The hints given about co-op play, including helicopter raids, special ops buddy missions and the opportunity to take a fireteam of soldiers under your command make it all the more appealing.

— Mike Channell

PC User says: A tantalising sequel.

TOMB RAIDER: UNDERWORLD PC

ALSO ON DS, PS2, PS3, Wii, XBOX 360 / RELEASED NOVEMBER 2008 / WEB www.tombraider.com

After tame tasty *Tomb Raider: Anniversary*, Crystal Dynamics takes the 'if it ain't broke don't fix it' approach. *Underworld* boasts a new graphics engine, Lara's got some new moves and it promises to integrate physics better for more infuriating puzzles. Mostly though, it's the same old *Tomb Raider*. In this ninth adventure, Lara Croft has uncovered evidence that Norse god Thor's legendary hammer actually exists, and it has the power to destroy the world. Again. One of the levels we were shown was set in Thailand, and it looked stunning. Not quite *Crysis* stunning, but definitely competing in the upper echelons of contemporary graphics. Lara looks better than ever and she now accumulates dirt climbing around dusty

temples, which is subsequently washed off when she gets wet. In addition, Ms Croft has around 1,700 moves, motion-captured from a stuntwoman. The Thai temple is teeming with new enemies including giant spiders, ferocious tigers and huge lizards, and Lara fights them off with sticky bombs and Uzis. If you're questioning Lara's merciless killing of endangered fauna, fret not — she now has a tranquilliser gun. No news on what effect the new vehicle sections have on her carbon footprint, though. It's not a radical departure from previous games, but has enough tweaks and additions to make it worth considering.

— Henry Winchester

PC User says: Fans of the *Tomb Raider* series will love it. ☺



Lara even takes on the creatures of the jungle!

Creature feature

The **PC User** team reviews the hottest games for PC and consoles.

SPORE PC

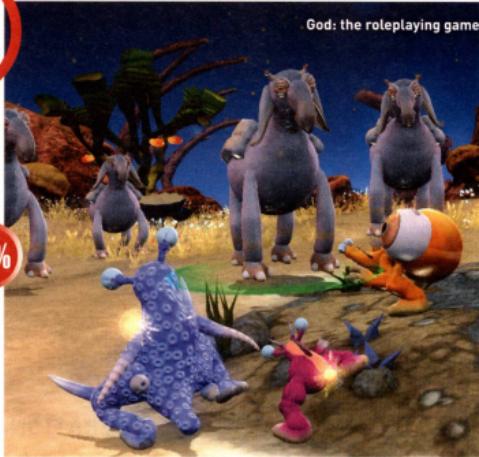
PRICE \$99.95 / **WEB** www.spore.com

Will Wright's follow-up to *The Sims* is a strange game — not what you'd expect. It's slick and messy by turns, as ambitious as it is compromised; hardcore yet casual. It's a tribute to gaming and the future of gaming. Its essential promise is met — to evolve a creature from cell stage to sentience, civilisation and finally space-faring. And you get to design the beast, its world and its universe. Much of this takes the form of mini-games. It's aimed at a casual audience, but blessed with what may be the most powerful content-creation tool of all time. Once you hit the space stage, everything changes. It becomes a complete game, an enormous, elaborate epic of exploration and creation that encompasses and justifies elements of the prior stages while advancing you to an incredible new level of godhood and creating a vast open universe you could potentially play in forever. It becomes *Elite* by way of *The Sims*, an RPG, an RTS, a shmup, a management game, an offline MMO, a toy, a tool. It's a masterpiece, but it's also quite a mess. It's hard to fight off negativity in your initial hours with it. Each section is engaging and offers additional ways to customise your creatures' nature and appearance, but the sense of disassociation is strong. The first four stages are too separate from those that follow, and it starts to feel like a notepad full of jotted-down short-story ideas rather than the hoped-for novel. *Spore* falls down the most during its Tribal and Civilization stages, where you've made your

creatures but you're establishing their behaviour and decor. Both are RTS variants and a little tokenistic; a matter of turning every rival on the map to your side via might or diplomacy. How you get there is fairly binary, and after the first time it's repetitive. Fortunately, you can start a new creature at any stage, so this stuff can be skipped. They remind you of how far you've come though. When you're in your spaceship, cruising across the surface of planets, once in a while you'll spot a little tribe of guys down there, picking fruit or dragging meat back to their crude huts. Those little guys were once you. When you've amassed a library of your own creation, every one of those creatures will mean something. *Spore* becomes so big it's almost overwhelming. Once you're a few hours into the open-ended space campaign, you'll have accrued enough cash and tools to redesign planets, seed them with new life, advance their existing species or wipe 'em all out. The game finally reveals itself for what it really is — not so much a creature creator as a god simulator. It takes a few hardcore days to reach *Spore*'s key prize: the opportunity to do anything and everything, something casual players, the game's intended audience, will never reach. For that reason alone, *Spore* may never reach the commercial success *The Sims* did. Regardless, it's a wonder of a game.

— Alec Meer

PC User says: Despite a few clunky stages, it's the vast galactic toy box we prayed for.



Points mean body parts, so get eating.



Life's brutal — might as well dance.



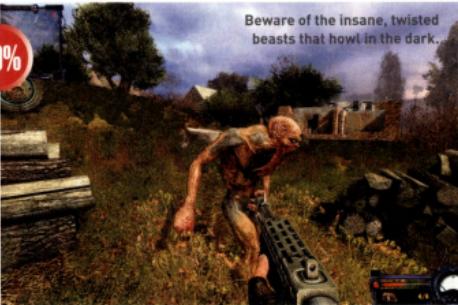
STALKER: CLEAR SKY PC

PRICE \$69.95 / WEB www.stalker-game.com/clearsky/

A Russian barman, employee of a sinister militaristic protest group, for some reason speaks with an assumed Jamaican accent. This is even more hideous than it sounds. He's unerringly cheerful, talks about smoking ganja and plays loud dub records — all the while dressed in an anti-radiation survival suit as the howls of unspeakably twisted beasts echo in the dark night outside. There are two possible explanations: either he works in the Zone, a grim and vicious wasteland populated by murderers and mutants, or he's constructed an elaborate fantasy to escape his sanity-sapping reality. This sequel/prequel to the awesomely atmospheric FPS, *STALKER: Shadow of Chernobyl* (SOC) simply doesn't recognise what made the first game great: its atmosphere. It's riddled with painfully wacky humour and cartoon voices, ritually ripping the post-apocalyptic mood away. *Clear Sky* promised to provide more back story for the Zone, the Chernobyl-devastated swathe of Russia now populated by science-fictional horror, and to return to its original design. Instead of which it's a straight stomp to the end with optional side-missions granted a little more purpose. The game kicks off with a Battlefield-like territory-grab area, vying with

bandits for capture points, but once you're out of it a fixed storyline kicks in. While SOC's plot managed enough mystery to be oddly compelling, *Clear Sky*'s bewildering and unengaging from the off, with only a fraction of the thrill and terror of the original. The Zone is now too heavily populated — it's hard to go more than a few minutes without a fight, which impacts the creepy otherworldliness and makes for an exhaustingly difficult experience. Between the reloads and crashes (which increase in frequency the further into the game you get), an astonishing amount of time is spent staring at loading screens. It's also wracked with balance issues and bugs. *Clear Sky*'s in a significantly worse state than SOC, despite it being largely just a mod of that game. The problems extend to the factual stuff, which continues past the initial zone as a sort of persistent side mission. If you identify which faction you want to align to, you can join up

70%



Beware of the insane, twisted beasts that howl in the dark.

after completing a few missions for them. Then you attempt to snatch capture points from their designated rival faction. There's a new interface screen that shows how well everyone's doing in a near bar graph and while it's suitably clear, again it undermines SOC's splendid atmosphere. And it feels insular and detached from the main game. Our score is based on the assumption there'll be a pretty hefty post-release patch. The game is certainly a mess, but a pretty one with challenging gameplay and an interesting theme. It scores as high as it does because *Shadow* is at its heart.

— Alec Meer

PC User says: Not strictly a failure, but potentially 2008's most disappointing game.

SPACE SIEGE PC

PRICE \$89.95 / WEB www.spacesiege.com

My brother and I spent hours grinding our way through the original *Dungeon Siege* game, hacking this and slashing that, looting the corpses of our fallen foes and shuffling our inventories ad infinitum. At times it was more compulsive than fun, but we kept at it. It is with a certain fondness that I look back on those times; sadly, the same will not be said for the hours I've spent slogging through *Space Siege*. Chris Taylor of *Total Annihilation* and *Supreme Commander* fame as well as the *Dungeon Siege* series talked a good game when I spoke to him about this sci-fi point-and-click shooter last autumn. Sadly, few of his promises have held true. Some of the key points are there — yes, it's set in space and yes, it keeps to the same point-and-click ethos of the other *Siege* games and yes, it is thoroughly simplified to the point of casual gaming. It's this last point that really sticks. Space shooters I'm all for, but I'd prefer my casual games to sit in the *Flash* sphere, like samurai furniture removals and the Victorian ladies slapping each other game. Where a game has a plot, though, I don't think it's too much to ask for a bit of depth. *Space Siege* is

65%

about as superficial as you can get, aimed at the sort of people who find *Gauntlet* mentally taxing. It runs thus: go to a section of your large space ship, shoot either the robots or the aliens (there's little to differentiate between them) and repeat. There's a loose plot about an angsty alien race attacking Earth and you've got to protect humanity. But largely that plot's irrelevant due to the fact that none of the supposed moral choices actually change much. The only difference your big final decision about the fate of humanity makes (I'm not really giving much away here) is whether the captured humans applaud your arrival or quake as you gas them. The game walks a tightrope between ugly and visually tedious, too. We were promised that the size of the ship would mean totally different



Looks suspiciously similar to the core sequence in *I, Robot*.

looking sections; instead we have kilometres of gunmetal grey corridor. Still, the main character's amusingly oversized head did consistently make me giggle. So is there anything to recommend *Space Siege*? What about the multiplayer? Sadly no — I was hoping that might be the game's saviour, but giving you all the character upgrades before you fire an assault rifle in anger takes away any desire you might have to play through.

— Dave James

PC User says: Far too simplistic and generic.



**BIONIC COMMANDO
REARMED** **PC**

ALSO ON XBOX 360, PS3 / PRICE TBA

WEB www.bioniccommando.com

Remember the '80s? Well, they're back with *Bionic Commando Rearmed*, a faithful remake of the 1988 NES classic *Bionic Commando*. The game sees you taking control of Nathan 'Rad' Spencer who has a bionic grappling hook instead of a right arm. He can't jump, so you have to use the arm to hurl yourself around. At first it feels chunky, but after a few levels you'll be flinging yourself around gracefully. You're transported from level to level by a helicopter pilot, but your path can be interrupted by enemy trucks. Although all the levels follow roughly the same format, they're great fun. In terms of tone, the game is pitch-perfect — airbrushed artwork, bright, brash and cheesy. Like the motocross game *Trials 2*, this is nostalgic gaming given a post-millennial makeover. And it has an awesome soundtrack. In addition to the single player missions, there's a non-networked multiplayer mode, which involves sharing a keyboard with your opponents, chucking up memories of jostling around a mate's monitor to play *Bomberman*. Co-op has also been added. Developers Grin have put a lot into making the game appealing to social gamers. But being a direct remake, it reminds you how punishing and unforgiving gaming was in its early days: no save points, just three lives gone and it's all over. It's probably the most perfectly-realised slice of retro indulgence since *Defcon*. That is, until someone remakes *Flashback* when '90s nostalgia kicks in.

—Henry Winchester

PC user says: Great nostalgia value and a lot of fun. Retro-clunkiness may put some off.

The eponymous hero, shouting in his lacklustre voice



**AMERICAN MCGEE'S
GRIMM PC**

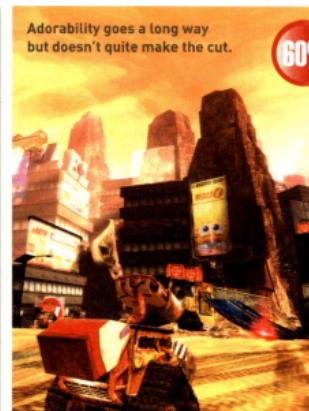
PRICE US\$3.99 per title

WEB www.gametap.com/grimms

The strapple trumpets: "Happily ever after ends now!" It's not wrong. Happiness won't be the emotion experienced while playing this waste of time. McGee's history: 2004's *Scrapland* was mediocre, while 2006's *Bad Day LA* was an unmitigated disaster. His return, in the form of weekly episodic games featuring disturbing takes on classic fairytales, isn't a step forward. I'll describe the sum total of what you do in *Grimm*: you run around. That's it. The idea: you get told a fairytale (*A Boy Learns What Fear Is*, *Little Red Riding Hood* or *The Fisherman And His Wife*), and play through it trying to turn it all dark. Your mere presence is enough to twist things to your evil bent. Despite primitive design, it morphs nicely from happy to a twisted mess. The only element that could possibly excite would be working out where you need to do the 'butt-stomp' jump, but the game insists on putting up a giant sign to tell you. And when Grimm stands still, he pisses. You wonder if the game might be designed for kids, but then you hear someone get called a 'slut', or see scenes of dying children hanging from nooses. The idea was to bring fairytales back to their original horrific nature, which is a noble intent, but the result is far from entertaining. McGee has three eight-episode seasons of this planned. The games are cheap, funded by Gametap to lure you to their online services, but even then, they're still a rip-off.

— John Walker

PC User says: A pointless mess of half an idea, clumsily designed and poorly executed.



WALL•E PC

ALSO ON DS, PSP, PS2, PS3, XBOX 360, Wii
PRICE \$30 / WEB <http://wall-e.playthq.com>

Time to add a new term to the Discerning Games Hack's Lexicon — in addition to 'playability' and the ever-popular 'graphics-ability', we now must enter 'adorability'. *WALL•E* has excellent admirability. Sadly, that's just about all it's got. Kids and parents alike have swooned at Pixar's cutesy robot on the silver screen, and to give the developer its due, that charm is absolutely captured in the cutscenes, albeit in shonky PS2 Port-o-vision. Unfortunately, while the animation is bang on, this is a title that deserves to be far prettier, especially given the source material. It also deserves to be a better game — the kiddies it's aimed at will no doubt struggle with the clumsy controls, tricky platforming puzzles and combat — yes, there's combat. One sequence in particular asks you to leap between fast-moving trolleys, and no matter how close to the end you get, if you fall and touch the floor you have to start the entire challenge again. It's troublesome trial and error that will have small children across the country bursting into tears. I hope you're proud of yourself THQ. The rest is a tepid mix of slow-paced item collection, cursorry puzzles, the odd shooting section and a few against-the-clock racing bits. Frankly, it completely misses what Pixar has managed so masterfully since *Toy Story* — creating something that appeals to both children and adults. *WALL•E* on PC is unlikely to appeal to either.

— Mike Channel

PC User says: Just another lazy port slash cheap cash-in, mostly for children.



Robots smash good.



75%

TOO HUMAN X360

PRICE \$99.95 / **WEB** www.siliconknights.com

Too Human is legendary developer Silicon Knights' long-in-development (and much hyped) 'vikings in space' action RPG. The sci-fi story revolves around a millennia-old war between humanity and a race of machines. You play as Baldr, one of a group of cybernetically-enhanced humans who've taken on the personas of Norse gods. At heart, *Too Human* is a dungeon-crawling, loot-grabbing, action RPG with a dash of old-school, hack'n'slash arcade games like *Golden Axe* or *Gauntlet*. It works best when you're swiftly slicing, bashing and blasting through hordes of enemies, and there's an intricate weapon and armour upgrade system, highly-customisable character development and a decently-acted story to keep things rolling. It's fun and likable, though a series of minor flaws prevent it from reaching true greatness. The game's most significant issue is balance. If your character dies, you simply get

respawned at the last checkpoint; the developers seem to have taken this as an invitation to throw huge numbers of enemies at you and not provide enough health pickups to let you survive. As such, large-scale battles often see you dying and getting respawned multiple times, with a 20-second cutscene played every time. In addition, the enemy targeting system is a little ineffective and it's near-impossible to single out a specific enemy from a large group. The story could also have used a little more detail; just who these characters are and their complex histories are never completely spelled out, and it can be a little perplexing. Still, *Too Human* is said to be the first in a trilogy, so there's always hope that some of these issues will be ironed out in the next instalment.

— Dan Gardiner

PC User says: Though flawed, this action RPG's fast'n'furious combat helps redeem it.

SUMMER ATHLETICS PC

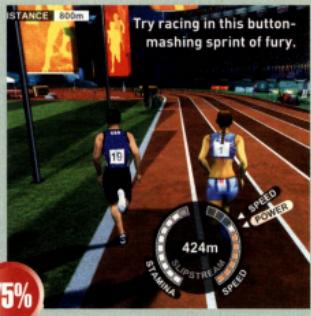
ALSO ON PS2, XBOX 360, Wii / **PRICE** \$49.95 / **WEB** www.summerathletics.com

Daley Thompson's *Decathlon* killed around three of my Competition Pro joysticks before my mum took it away from me. Since then, these button-mashing, controller-maiming athletics games have always held a certain forbidden-fruit appeal for me. *Summer Athletics* from German publishers dtp has jumped the gun on the whole Olympic gag, by predating the licensed affair from Sega by a clear month. We haven't got our fingers blistered on Beijing 2008, but dtp's game has thoroughly entertained. It's not all just alternate button-tapping as fast as humanly possible, oh no, some of it's actually quite

tactical. Of course, the sprinting events are furious affairs, but the longer events such as 800m or 1.500m running require a certain tactical nous to get the hang of before you engage in the final sprint for the line. Graphically, it's none too pretty, but the real failing is the multiplayer angle. I wanted to be able to outpace Alan in the 100m like I could never do in real life. Unfortunately, all the events work using the hotseat function rather than multiple controllers.

— Dave James

PC User says: Button-mashing fun, but hotseat vs multiplayer's a drawback.



75%

ECHOCHROME PSP

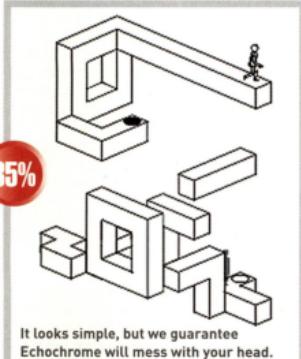
ALSO ON PS3 / **PRICE** \$49.95 / **WEB** www.echochromegame.com

Echochrome is one of the best puzzle games to come out in years. It takes inspiration from Dutch artist MC Escher's mind-bending drawings. His optical illusions include staircases that seem to go up but somehow loop back onto themselves, a pair of drawn hands that are illustrating each other to life and the interior of a topsy-turvy house that defies gravity. The drawings 'work' because of the perspective they're illustrated from and *Echochrome* is based on the same concept. A basic level looks rather plain, with black and white line-drawing graphics of blocks and stairways floating in space. You're challenged to guide a small walking mannequin figure (who isn't controlled by the player) to specific points through each level and finally an exit. This is done by using the PSP's analogue stick

to shift the camera perspective so separate floating blocks are joined together to create new paths. Much of the time you're swinging the camera back and forth and up and down in an attempt to mentally unravel the best course. Like the best puzzle games, this is great fun because it actually challenges you to think. While it can be incredibly frustrating at times, it's richly rewarding when you finally solve a level that you've been trying to wrap your head around for 15 minutes. With a massive 315 levels in the Australian release, there's absolutely heaps of gameplay here too, and we can't recommend it highly enough to puzzle-game fans.

— Dan Gardiner

PC User says: A challenging, massive and perspective-changing puzzle game.



It looks simple, but we guarantee
Echochrome will mess with your head.

75%



Sweet oblivion

Henry Winchester explains how to give *Oblivion* a facelift.

THE ELDER SCROLLS IV: OBLIVION PC

ALSO ON PS3, XBOX 360 / PRICE \$79.95 / WEB www.elderscrolls.com

The *Elder Scrolls IV: Oblivion* is one of those titles that everyone agrees is a great game, but it could be greater. Despite being hampered by simultaneous Xbox 360 co-development, it still managed to have that 'wow' factor when you saw the scale of the outdoor environments. And any graphical misgivings could be overlooked because of the sheer amount of ambition the game obviously had.

Even so, it's a game that's just celebrated a second candle on its cake and the cracks are starting to creep in. No matter how beautiful its vistas, they're never going to match *Crysis*' desert island gorgeousness. But you can bump them up a little and get it looking like it should have from the start, thanks to a huge network of fans and modders.

Before you start tinkering with it, back up the game and your save files. Although most mods are sturdy and *Oblivion*'s modified Gamebryo engine is a solid foundation for mods, things can go wrong.

Most mods are supplied as .zip files, so it's simply a matter of unzipping them and plopping them into your data folder within *Oblivion*. If there are .esp files, these will be detected by the *Oblivion Mod Manager* and you can turn them on or off. Turn them all on and you'll experience one of the best games of recent years in a new light. All of these mods can be found at <http://planetelderscrolls.gamespy.com/>.

M O D S

* **Oblivion Mod Manager.** The first step in modding *Oblivion* is to install Timeslip's excellent *Oblivion Mod Manager*. This handy app lets you turn mods

on and off, so you won't kill your game if two aren't compatible.

* **Carl's Texture Pack.**

This painstakingly constructed fan-made mod includes a whopping 2GB of high-res textures upgrading everything from hills to snowflakes. You'll need a fairly hefty PC to run it.

* **Natural Environments.**

This mod adds subtle effects: more flora and fauna, revised sky textures and more natural-looking water. It also ups the number of weather systems from seven to 40, meaning it shows far more often.

* **Beautiful People.**

The people in *Oblivion* were never the prettiest; this mod adds a compendium of many alterations to *Oblivion*'s models. You'll know it's working when you find a goblin attractive.

* **Illumination Within.**

So far, we've only concentrated on the countryside areas, but this mod makes villages and towns more aesthetically pleasing. It does things like shine rays of light from each building's windows at night.

Bring new light to one of the best games of recent years with a clutch of *Oblivion* mods.



TWEAKS

In addition to the humungous range of *Oblivion* mods, there are a number of .ini file tweaks that can make things just that little bit easier on the eye. In the game's folder, you'll find a handy configuration file called *Oblivion_default*. Open it with Notepad and edit the following values.

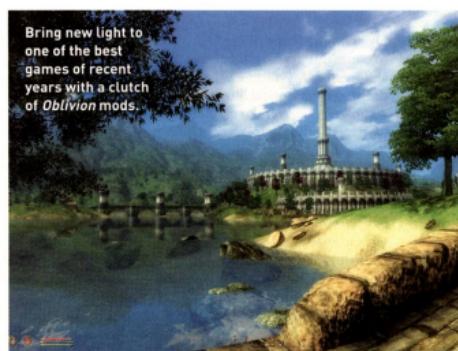
➊ *Oblivion*'s water only sees big lumps of land, turning a blind eye to trees, buildings and people. You can enable them by editing the following entries:

bUseWaterReflectionsMisc=1
bUseWaterReflectionsStatics=1
bUseWaterReflectionsTrees=1
bUseWaterReflectionsActors=1

➋ Setting *iMinGrassSize=80* to a higher value alters the amount of tufts, but don't set it too high.

➌ Altering these values is likely to have an impact on system performance. Fortunately, there are a couple of tweaks if you've got 1 or 2GB of RAM and a multicore processor. Setting *bUseThreadedBlood* and *bUseThreadedMorpher* to **1** will use all your cores for some effects, while changing *ulInteriorCell Buffer* to **6** and *eInteriorCell Buffer* to **72** will improve your RAM usage.

➍ Find the intro music too rousing? Drop an MP3 into the *Data\Music\Special* folder, rename it *tes4title.mp3* and it'll play over the title screen. ☺



BUYER'S GUIDE



PC SPECIFICATIONS / REVIEW HIGHLIGHTS

Your perfect PC

Darren Yates selects the best-value PC specifications for your needs.

With the way the market is going nuts over new ultraportable and low-cost netbooks, you could be forgiven for thinking that desktop PCs are old hat and aren't worth the effort. Well, nothing could be further from the truth. PC component prices, in particular CPU and hard drive prices, have been falling steadily over the last six months to a point where the amount of speed and storage you can get for under \$1,500 is quite astonishing.

Intel in particular has been going hard at it, dropping the price of its Core 2 Duo E8000 series of CPUs. As you'll read in this month's Best Value PC feature on page 22, the E8000 range of CPUs are highly overclockable and if you're willing to take the risk (and you do it right), it's possible to push these CPUs to 4GHz with air-cooling only. Still, even at their standard clock speeds, these CPUs represent excellent value and terrific performance.

HARD DRIVE PRICES

Even more astonishing has been the fall in hard drive prices. It's now at the point where you'll pay little more than \$150 for a 1,000GB Samsung HD103UJ SATA2 hard drive. Arguably even better value are the 750GB models that are now under \$100. Our modelling shows you can put together a good \$1,500 PC with a hefty 3,000GB of storage and CPU speed to burn.

SYSTEM EXAMPLES

Based on our PerfectPC software, we've put together three systems — one each for gaming, video editing and all-roundr

applications. Typically, video and all-roundr systems can be built with 3,000GB of storage and a 22in widescreen monitor. The main difference is the video system gets a Core 2 Duo E8500 to make use of its higher encoding speed while the all-roundr system gets a slightly slower Core 2 Duo E7200 but gains an ATI Radeon HD 4850 graphics card.

AMD SYSTEMS

It's fairly clear that Intel's rival AMD is struggling to deliver CPUs that compete with the Core 2 Duo however the word is the company is expected to start releasing new high-performing CPUs in the next

month or so. That means if you're keen to go with an AMD-based computer, it'll probably be worth your while to hang off for a few weeks and see what AMD comes up with. The CPUs to arrive will be the first of AMD's 45-nanometre units and with more cache and improved architecture, they're expected to give Intel something to think about.

Finally this month, you won't find our PerfectPC software on this month's cover disc. We're making some changes to the way it works and we'll bring you those changes in a new version that we'll have back on the disc shortly. 

PC USER'S RECOMMENDED PC SPECIFICATIONS

	Gaming PC under \$1,500	Video-editing PC under \$1,500	Home all-roundr PC under \$1,500	AMD Gaming PC under \$1,500
Processor	2.5GHz Intel Core 2 Duo Q9300	3.16GHz Intel Core 2 Duo E8500	2.53GHz Intel Core 2 Duo E7200	2.5GHz AMD Phenom X4 9850
Motherboard	Gigabyte GA-EP43-DS3	ASUS P5E-VM	Gigabyte GA-EP43-DS3	ASUS M3A-H/HDMI
Memory	2GB DDR2-800	2GB DDR2-800	2GB DDR2-800	2GB DDR2-800
Graphics card	512MB ATI Radeon HD 4850	512MB ATI Radeon HD 3650	512MB ATI Radeon HD 4850	512MB ATI Radeon HD 4850
Hard drive(s)	2 x 750GB Samsung HD75SLJ SATA2 (1,500GB)	4 x 750GB Samsung HD75SLJ SATA2 (3,000GB)	4 x 750GB Samsung HD75SLJ SATA2 (3,000GB)	2 x 750GB Samsung HD75SLJ SATA2 (1,500GB)
Optical drive, monitor, operating system and extras	Pioneer DVR-215 DVD burner, 22in Viewsonic VA226W widescreen LCD, Microsoft Windows Vista Home Premium, 500W case, keyboard, mouse			
Estimated price (including GST)	\$1,460	\$1,493	\$1,478	\$1,467
Alternatives/upgrades	A digital TV tuner card for media centre applications, a second DVD burner for disc copying, multichannel speaker system, consider using RAID on the hard drives.			

TECH TERMS: **Chipset.** A pair of chips on the motherboard (main circuit board inside the PC) that control many key functions, including which processors can be used. **SLI or Crossfire.** Support for two graphics cards to run together for improved 3D gaming performance. SLI is for Nvidia-based boards, Crossfire is for ATI cards. **RAID.** Refers to a number of ways of using two or more hard disk drives together RAID 0 pools disk space to improve performance. RAID 1 mirrors two disks to safeguard data. RAID 5 is less wasteful than RAID 1, losing only one drive's capacity for data redundancy.

TOP 100 PRODUCTS: PCs_NOTEBOOKS_110 • BIG-SCREEN TVs_PROJECTORS_DIGITAL CAMERAS_

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HOME ENTERTAINMENT_112 • SOFTWARE_PRINTERS_DVD BURNERS_GAMES_113

• LAPTOP BAGS_NETWORKING_114

BUYER'S GUIDE > Top 100 products

PC SPECIFICATIONS / REVIEW HIGHLIGHTS



Excel Computers Excel MCS-930

\$2,999 / EXCEL COMPUTERS

(02) 9649 6668

www.excelcomputers.com.au

There's no monitor, mouse or keyboard included here, but do you get an absolute mountain of storage — 5,000GB worth! With that much storage, this makes for a great media centre PC.

rating 90%



MSI Wind

\$699 / MSI / (02) 9748 0070

www.msicomputer.com.au

This MSI is exceptional value for money. It's super small and light, but still immensely usable. It has a 1,024 x 600-pixel 10.1in screen, and a decent keyboard. The battery life is excellent and the overall performance was about twice as fast as other notebooks in its class. An 80GB hard drive will also serve you well for storage.

rating 90%

PCs

Product	Review issue	Key specs	PC User says	Value rating
ASUS Eee Box S429 www.asus.com.au	October 2008	Intel Atom N270, 80GB HDD, 1GB RAM	"Plenty of features for an excellent price."	85%
T1 Computers TI Deluxe 260 \$1,499 www.ticomputers.com.au	October 2008	Intel Core 2 Duo E8500, 2 x 500GB HDD, 2GB RAM	"Excellent speed, but at the expense of hard drive space."	85%
Pacstar Australia HomePC 2008 \$1,499 www.pacstarcomputer.com.au	October 2008	Intel Core 2 Duo E8500, 2 x 750GB HDD, 2GB RAM	"A well-balanced system delivering performance and features."	85%
PC eXpress Invader 1600B \$1,999 www.pc-express.com.au	August 2008	Intel Core 2 Duo E8500, 4 x 750GB HDD, 2GB RAM	"A great combination of storage and speed for the price."	90%
Excel Computers Excel MCS-930 \$2,999 www.excelcomputers.com.au	August 2008	Intel Core 2 Quad Q9300, 5 x 1,000GB HDD, 4GB RAM	"With 5,000GB of storage and a cute case, it's got something for everyone."	90%
Excel Computers SB-1000 \$1,199 www.excelcomputers.com.au	August 2008	Intel Core 2 Duo E8400, 2 x 500GB HDD, 2GB RAM	"1,000GB of storage, good performance and networking options."	90%
Excel Computers Excel MC-547 \$1,999 www.excelcomputers.com.au	August 2008	Intel Core 2 Duo E8400, 4 x 750GB HDD, 2GB RAM	"A cracker of a system, but slower than the Invader 1600B."	85%
PC eXpress Invader 505B3 \$1,499 www.pc-express.com.au	July 2008	Intel Core 2 Duo E8400, 2 x 500GB HDD, 2GB RAM	"Cracking performance that made other systems look ordinary."	95%
PC eXpress Invader 570B \$2,499 www.pc-express.com.au	July 2008	Intel Core 2 Duo E8500, 2 x 500GB and 750GB HDD, 2GB RAM	"Rip-roaring gaming speed, features and performance."	95%
T1 Computers TI Deluxe Game 2500 \$2,499 www.ticomputers.com.au	July 2008	Intel Core 2 Duo E8500, 2 x 1,000GB HDD, 2GB RAM	"Cracking gaming speed makes this one a great option."	95%
Excel Computers Excel AL-990X \$1,499 www.excelcomputers.com.au	July 2008	Intel Core 2 Duo E8400, 2 x 500GB HDD, 2GB RAM	"One of the best all-round systems we've seen for under \$1,500."	90%
Excel Computers Excel GM-587Dual \$2,399 www.excelcomputers.com.au	July 2008	Intel Core 2 Duo E8500, 2 x 1,000GB HDD, 2GB RAM	"Slightly slower gaming speed, but that's offset by a \$100 price saving."	90%

NOTEBOOKS

Product	Review issue	Key specs	PC User says	Value rating
MSI Wind S699 www.msicomputer.com.au	September 2008	Intel Atom N270, 1GB RAM, 80GB HDD, 10.1in widescreen LCD	"The best low-cost ultraportable we've seen so far."	90%
Toshiba Portégé R500 \$3,299 www.isd.toshiba.com.au	September 2008	Intel Core 2 Duo U7700, 1GB RAM, 160GB HDD, 12.1in widescreen LCD	"It's not cheap, but it's just about the best ultraportable around."	85%
NEC Versa S9100 \$2,999 www.nec.com.au	September 2008	Intel Core 2 Duo U7600, 2GB RAM, 160GB HDD, 12.1in widescreen LCD	"Very light, excellent storage and great battery life."	85%
ASUS Eee PC 900 XP Edition, \$599; Linux Edition, \$649 www.asus.com.au	July 2008	Intel Celeron M, 1GB RAM, 12GB or 20GB storage	"A fantastic, low-cost ultraportable, more flexible than the original."	90%
Acer Extensa 5620Z \$899 www.acer.com.au	June 2008	Intel Pentium Dual Core T2370, 1GB RAM, 120GB HDD, 15.4in monitor	"The best notebook we've seen for under \$900."	90%
Acer Extensa 5620Z \$1,099 www.acer.com.au	June 2008	Intel Core 2 Duo T8300, 2GB RAM, 250GB HDD, 15.4in LCD	"Almost the perfect notebook."	90%
ASUS X55SV \$1,799 www.asus.com.au	June 2008	Intel Core 2 Duo T8300, 2GB RAM, 250GB HDD, 15.4in LCD	"Only pipped at the post by the 5620Z, but definitely worth inspecting."	85%
ASUS ATSV \$1,999 www.asus.com.au	May 2008	Intel Core 2 Duo T7500, 3GB RAM, 250GB HDD, 17in widescreen LCD	"Only costs \$1,999, but it's loaded with features — great value."	90%
Fujitsu Lifebook S6510U \$3,099 www.fujitsu.com.au	April 2008	Intel Core 2 Duo, 2GB RAM, 160GB HDD, 14.1in monitor	"A first-rate ultraportable for users who want internet on the go."	85%
Toshiba Satellite A200 \$999 after \$100 cashback www.isd.toshiba.com.au	March 2008	Intel Pentium Dual-Core T2310, 1GB RAM, 120GB HDD, 15.4in widescreen LCD	"The best notebook that you'll find under \$1,000."	95%
Dell Inspiron 1420 \$1,699 www.dell.com.au	March 2008	Intel Core 2 Duo T7500, 2GB RAM, 160GB HDD, 14.1in widescreen LCD	"Truckloads of speed and a ton of battery life."	90%
HP Pavilion dv6514tx \$2,199 www.hp.com.au	March 2008	Intel Core 2 Duo T7250, 2GB RAM, 250GB HDD, 14.1in widescreen LCD	"Tons of features, great price and well under 3kg."	90%



BIG SCREEN TVs/PROJECTORS

Product	Review issue	Key specs	PC User says	Value rating
BenQ W500 \$1,899 www.benq.com.au	August 2008	720p LCD projector	"A good home theatre projector at a good price."	90%
Dell M209X \$1,699 www.dell.com.au	August 2008	1080p DLP projector	"The best DLP projector of the roundup."	90%
Sony VPLVW40 \$4,699 www.sony.com.au	August 2008	1080p SXRD projector	"The best home theatre projector we've seen, but lamps are expensive."	90%
BenQ W5000 \$3,999 www.benq.com.au	August 2008	1080p DLP projector	"Not as good as the Sony, but better value over the long term."	85%
Epson EMP-TW1000 \$3,499 www.epson.com.au	August 2008	1080p LCD projector	"Not outstanding, but great value."	85%
Panasonic Viera TH-42PZ700A \$2,600 www.panasonic.com.au	August 2008	42in 1080p plasma TV	"The colour accuracy and image quality are well worth seeing."	85%
Panasonic Viera TH-50PZ700A \$3,600 www.panasonic.com.au	August 2008	50in 1080p plasma TV	"Thirsty for power, but delivers an excellent all-round image."	85%
Sony Bravia KDL46XBR \$4,000 www.sony.com.au	August 2008	46in 1080p LCD TV	"A bit pricey, but definitely the best Sony LCD TV we've seen so far."	85%
Sony Bravia PFLAW15 \$2,100 www.sony.com.au	August 2008	720p LCD projector	"The best of the 720p projectors overall, but not \$200 better than the BenQ."	85%
Toshiba TDP-P9 \$1,699 www.toshiba.com.au	August 2008	1080i DLP projector	"It does just about everything right, but it can't match the Dell."	85%
ViewSonic PRO8100 \$5,499 www.viewsonic.com.au	August 2008	1080p LCD projector	"It's expensive, but the image quality is hard to fault."	85%

DIGITAL CAMERAS

Product	Review issue	Key specs	PC User says	Value rating
Pentax K200D \$959 with 18-55mm lens www.pentax.com.au	July 2008	10-megapixel digital SLR	"The most feature-rich DSLR under \$900."	90%
Canon EOS 450D \$1,599 for twin lens kit www.canon.com.au	July 2008	12-megapixel digital SLR	"A good camera missing a few options."	85%
Nikon D40x \$1,100 for twin lens kit www.nikon.com.au	July 2008	10.2-megapixel digital SLR	"Arguably one of the best buys on the market."	85%

PC COMPONENTS

Product	Review issue	Key specs	PC User says	Value rating
Gigabyte GV-R485-512H-B \$265 www.giga-byte.com.au	September 2008	ATI Radeon HD 4850 graphics card	"This single-slot card is excellent value."	85%
Gigabyte GA-MAT78GM-S2H \$110 www.giga-byte.com.au	June 2008	ATI motherboard	"Loaded with extras, it delivers multimedia at a bargain price."	90%
ASUS EN9600GT TOP \$270 www.asus.com.au	June 2008	Nvidia GeForce 9600 GTX graphics card	"A great card for hard-core gamers on a budget."	85%
Intel Core 2 Duo \$240 www.intel.com.au	March 2008	Dual-core processor	"Simply brilliant."	100%
Samsung Spinpoint F1 HD103SJ \$375 www.samsung.com.au	March 2008	7,200rpm, 1TB internal hard drive	"Gets almost everything right: speedy, cool and comparatively inexpensive."	90%
ASUS P5K-E \$240 www.asus.com.au	February 2008	Intel motherboard	"Includes integrated Wi-Fi, although the layout could be better."	95%
Gigabyte GA-P35-DS3P \$180 www.giga-byte.com.au	February 2008	Intel motherboard	"If you're on a tight budget, this one packs heaps of features at a very decent price."	95%
OEM cooler Free with CPU	February 2008	Fan-based cooling device	"Clearly the best option for most users."	95%
Gigabyte G-Power 2 Pro \$99 www.giga-byte.com.au	February 2008	Fan-based cooling device	"Great performance from a reasonably-sized cooler."	90%



Panasonic Viera TH-50PZ700A

\$3,600 / PANASONIC / 13 26 00
www.panasonic.com.au

This lovely 50in plasma has remarkably good image quality, with clean, smooth colouring and no obvious gradation issues. The contrast ratio is also almost twice as good as most of the LCDs we tested. This TV is excellent value for money.

rating 85%

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PC SPECIFICATIONS / REVIEW HIGHLIGHTS



Dell 2408WFP

\$999 / DELL

1800 812 393

www.dell.com.au

This monitor was the standout performer across the units we tested. It has rich colours, excellent viewing angles and inputs galore. The unit is quite expensive, but after seeing a high-definition movie on this screen, other models look sub-par.

rating 95%



Belkin TuneStudio

\$399 / CMI / (03) 9315 2244

www.belkin.com.au

This little unit can record 16-bit/44.1kHz uncompressed WAV audio files using an iPod as a hard drive, and can be connected to your PC or Mac via USB to offer really high-quality recording on the go. It also functions as a great mixer for your home studio.

rating 95%

LCD MONITORS

Product	Review issue	Key specs	PC User says	Value rating
Dell 2408WFP \$999 www.dell.com.au	June 2008	24in LCD monitor	"It's pricey, but the best things in life often are."	95%
LG L246WH \$540 www.lge.com.au	June 2008	24in LCD monitor	"It's not as good as the Dell, but it's still well worth a look."	80%
LG W2242T \$730 www.lge.com.au	June 2008	22in widescreen LCD monitor	"Not loaded with features, but offers reasonable image quality."	80%
Philips 220CW \$399 www.philips.com.au	June 2008	22in widescreen LCD monitor	"A reasonable monitor, but expensive considering the lack of extras."	80%
ViewSonic VX2255WMH \$399 www.viewsonic.com.au	June 2008	22in widescreen LCD monitor	"Getting long in the tooth, but delivers an excellent stand."	80%
ViewSonic VX2835WM \$850 www.viewsonic.com.au	June 2008	28in LCD monitor	"Getting long in the tooth, but you don't see too many 28in monitors for under \$900."	80%

PC SPEAKERS

Product	Review issue	Key specs	PC User says	Value rating
Creative i-Trigue 3400 \$150 www.au.creative.com	February 2008	Desktop stereo speakers with 24W subwoofer and 8.5W satellites	"A good-sounding set for the price – plus all the features you'd want from stereo PC speakers."	95%
JBL Creature \$200-\$265 www.jbl.com	February 2008	Desktop stereo speakers with 27W subwoofer and 9W satellites	"There's no line-in, but otherwise this is an outstanding set of PC speakers for music lovers."	95%
Logitech G-51 \$300 www.logitech.com	February 2008	Surround sound speakers with 56W subwoofer and 20W satellites	"The controls and features are the best of those reviewed here."	95%
Cyber Acoustics CA-3550 \$100 www.cyberacoustics.com	February 2008	Desktop stereo speakers with 20W subwoofer and 6W satellites	"No auxiliary line-in, but great budget speakers for those who like plenty of bass."	90%
Altec Lansing VS 2421 \$99 www.altec Lansing.com	February 2008	Desktop stereo speakers with 14W subwoofer and 7W satellites	"Very good all-round sound for the price, with plenty of features."	90%

BROADBAND PLANS

Product	Review issue	Key specs	PC User says	Value rating
Blackstamp Budget ADSL2 \$44.95/month www.blackstamp.net.au	April 2008	Max speed: 24.576Kbps download, 1.024Kbps upload; Data limits: 20GB peak, 10GB offpeak	"This offering stood out with a good data allowance and ADSL2+ speeds."	90%
SuperNerd ADSL2+ 35GB \$60/month www.supernerd.com.au	April 2008	Max speed: 24.576Kbps download, 1.024Kbps upload; Data limits: 35GB	"Those who want speed and data should consider this plan."	90%
SuperNerd ADSL2+ 80GB \$100/month www.supernerd.com.au	April 2008	Max speed: 24.576Kbps download, 1.024Kbps upload; Data limits: 80GB	"Captured our attention thanks to a hefty download allowance."	90%
AuNix Velocity 256 Combo \$23.95/month www.aunix.com.au	April 2008	Max speed: 256Kbps download, 64Kbps upload; Data limits: 15GB peak, 56GB offpeak	"We give AuNix the nod because 15GB of its overall data allowance is counted in peak hours."	85%
AuNix Velocity 512 Combo \$39.95/month www.aunix.com.au	April 2008	Max speed: 512Kbps download, 128Kbps upload; Data limits: 25GB peak, 10GB offpeak	"AuNix beat the competition thanks to a shorter contract term."	85%
netXP Elight \$24.90/month www.netxp.com.au	April 2008	Max speed: 256Kbps download, 64Kbps upload; Data limits: 5GB	"Offers a decent 5GB of space (shaped) with a decent termination fee."	85%

HOME ENTERTAINMENT

Product	Review issue	Key specs	PC User says	Value rating
Belkin TuneStudio \$399 www.belkin.com.au	September 2008	Small-scale music production device	"A great budget solution for small-scale music production."	95%
Altec Lansing Orbit-M \$55 www.altec Lansing.com	September 2008	Budget iPod speakers	"A great unit for the truly mobile user."	90%
Altec Lansing iMotion IM600 \$200 www.altec Lansing.com	September 2008	Mid-range iPod speaker system	"The built-in radio and battery put this model above the rest."	90%
Jamo I300 \$499 www.jamo.com.au	June 2008	iPod speakers	"Pricy, but the quality shines through."	85%
Logitech V470 Cordless Mouse \$55 www.logitech.com.au	June 2008	Cordless mouse	"Pretty good value for the price."	80%



SOFTWARE

Product	Review issue	Key specs	PC User says	Value rating
Symantec Norton 360 2.0 \$129.99 p/a www.symantec.com.au	September 2008	Security suite	"It provides excellent protection and can readily be set for silent running (so no more pop-ups)."	90%
CyberLink PowerDVD 8 Ultra \$169.99 www.cyberlink.com	August 2008	Program for watching and managing video on your PC	"An essential tool for anyone playing DVDs on their PC."	95%
CyberLink PowerDirector 7 Ultra \$94.95-\$199.95 www.cyberlink.com	August 2008	Video editing tools	"A good one for home users, but with some limitations."	90%
Roxio Toast 9 Titanium \$179.95 www.roxio.com	August 2008	Disc burning and authoring tool for the Apple Mac	"Toast is the clear choice for disc copying and creation."	90%

PRINTERS

Product	Review issue	Key specs	PC User says	Value rating
Canon PIXMA iP3500 \$89 www.canon.com.au	July 2008	4,800 x 1,200 inkjet printer	"After a decent printer for under \$100? Buy this one."	90%
Canon PIXMA MP520 \$140 www.canon.com.au	July 2008	Budget multifunction device	"At this price, forget the rest — just buy this one."	90%
Canon PIXMA MP610 \$249 www.canon.com.au	July 2008	High-end multifunction device	"Great for fast, low-cost printing every day."	90%

DVD BURNERS

Product	Review issue	Key specs	PC User says	Value rating
Lite-On DH-20A4P \$35 www.liteonit.com	May 2008	Internal DVD burner	"Cheap and great all-rounder, but you'll need IDE."	90%
Lite-On DH-20A5S \$40 www.liteonit.com	May 2008	Internal DVD burner	"This SATA version is also great value."	90%
Pioneer BDC-S02 \$220 www.pioneer.com.au	May 2008	Internal Blu-ray player/DVD burner	"The cheapest option for Blu-ray movies and a good burner."	90%
Pioneer BDR-202BK \$530 www.pioneer.com.au	May 2008	Internal Blu-ray burner	"The cheapest Blu-ray burner on the market, and it burns well."	85%

GAMES

Product	Review issue	Key specs	PC User says	Value rating
Race Driver: GRID \$79.95 http://au.codemasters.com/grid/	August 2008	Simulation game for PC	"GRID is gorgeous and enormously good fun."	90%
Grand Theft Auto IV \$120 www.rockstargames.com/iv	July 2008	Action game for Xbox 360 and PS3	"A revolutionary title that sets a new standard for video games."	100%
Trials 2 Second Edition US\$19.90 www.redlynxstudios.com	July 2008	Strategy/simulation game for PC	"An enjoyable puzzler, which will have you coming back for more."	90%
God of War: Chains of Olympus \$59.95 www.godofwargame.com	June 2008	Action game for PlayStation Portable	"A must-have action game; worth the price of a PSP just to play it."	95%
Bally: Scholarship Edition \$79.95 www.rockstargames.com/bally	June 2008	Simulation game for Xbox 360	"A huge, varied and humorous take on high school life."	85%
Burnout Paradise \$99.95 www.criteriongames.com	June 2008	Arcade racer for Xbox 360	"One of the best free-roaming arcade racers we've played."	85%
Sins of a Solar Empire \$69.95 www.sinsofasolarempire.com	May 2008	Strategy game for PC	"An awesome RTS that comes close to defining the word epic."	90%
Shadowgrounds Survivor US\$19.95 www.shadowgroundssurvivor.com	April 2008	Action game for PC	"Go play it now — it's awesome."	90%
Super Mario Galaxy \$99.95 www.supermariogalaxy.com	March 2008	Game for Nintendo Wii	"The best 3D Mario game to date and a must-have for Wii owners."	90%
Call of Duty 4: Modern Warfare \$99.95 www.charlieoscardelta.com	February 2008	First-person shooter for PC	"A brilliant FPS reinvention that applies cutting-edge production values."	90%
FIFA 08 \$79.95 www.fifa.08.ea.com	February 2008	PC sports simulation	"Prevails to be a fantastic addition to this soccer series."	90%
BioShock \$89.95 www.bioshockgame.com	January 2008	First-person shooter for PC	"A paragon of single-player, story-driven gaming."	95%



Symantec Norton 360 2.0

\$129.99 p/a / SYMANTEC
1800 680 026
www.symantec.com.au

This is not a suite that's loaded down with features, but it will protect your computer while it sits quietly in the background. It includes antivirus, antispyware, antispan and more, and it will protect you from visiting phishing sites.

rating **90%**

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PC SPECIFICATIONS / REVIEW HIGHLIGHTS



QNAP TS-109 II

\$315 / BLUECHIP IT

1300 727 474

www.qnap.com

This unit doesn't just function as a storage device, the TS-109 has enough features to make it a dedicated web server. It's only a little larger than a portable 3.5in drive, and it comes with web content management software and MySQL support.

rating **90%**

PC USER NOVEMBER 2008 SUBSCRIPTION PROMOTION TERMS AND CONDITIONS

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LAPTOP BAGS

Product	Review issue	Key specs	PC User says	Value rating
Belkin Messenger F8N050 \$60 www.belkin.com.au	August 2008	15in messenger-style laptop bag	"Great value, but there's limited space inside."	90%
Crumpler The Considerable Embarrassment \$135 www.crumpler.com.au	August 2008	15in messenger-style laptop bag	"Tough fabrics with lots of space and easy access to all your gear."	90%
Kensington Contour Traveller \$100 http://au.kensington.com	August 2008	15in laptop carry case	"Reasonably priced, solid construction and good design."	90%
Logitech Kenetic \$99.95 www.logitech.com	August 2008	15in laptop carry case	"This is a well-thought out bag for a decent price."	90%
Targus Voyager \$129.95 www.targus.com.au	August 2008	17in backpack-style laptop bag	"Keeps your lunch warm and your notebook safe."	90%

NETWORKING

Product	Review issue	Key specs	PC User says	Value rating
Billion BIPAC 7402NX \$295 www.billion.com.au	October 2008	802.11n ADSL 2+ router	"Very fast and capable."	90%
QNAP TS-109 II \$315 www.qnap.com	October 2008	Single-drive network storage device	"No redundancy here, but you get lots of features for the price."	90%
D-Link DNS-313 \$160 www.dlink.com.au	October 2008	Single-drive network storage device	"No redundancy, but cheap, versatile and easy to set up."	90%
D-Link DNS-343 \$599 www.dlink.com.au	October 2008	Four-drive RAID storage device	"No built-in web server, but this one is fast and good value for money."	90%
Netgear EVA8000 \$415 www.netgear.com.au	October 2008	Media streaming device	"Great file support — will even support YouTube videos."	90%
Thecus N5200 \$1,799 www.thecus.com	October 2008	Five-drive RAID storage device with 5,000GB of storage included	"It seems pricey, but with 5TB of storage, you won't need anything else for a while."	90%
Minitar MNAS234 \$399 www.minitar.com	October 2008	Four-drive RAID storage device	"The cheapest four-bay model we saw."	85%
QNAP TS-201 \$340 www.qnap.com	October 2008	Two-drive RAID storage device	"Excellent features for the price, but it's not as fast as others units we tested."	80% 



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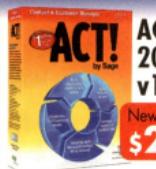
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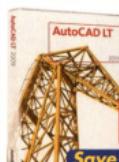
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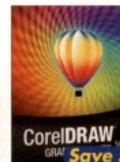
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PROfESSoNal model

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Our AUTOMATIC ANNOUNCEMENT DEVICE will Answer your incoming telephone calls, play an announcement and then resume ringing of your telephones, ideal for announcing change of number or that the call will be recorded.



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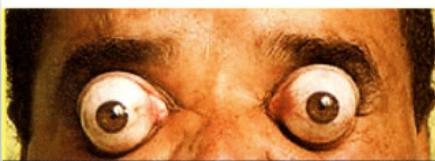
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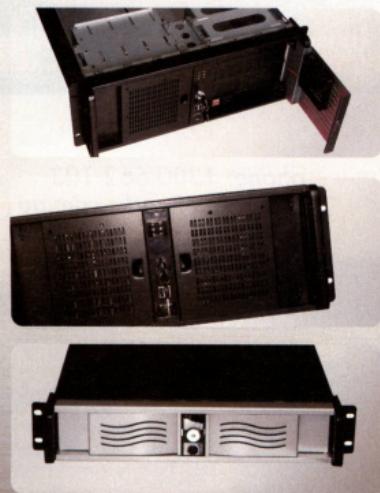
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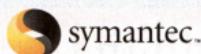
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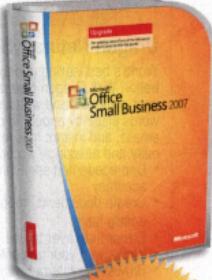
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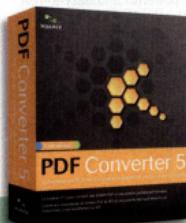
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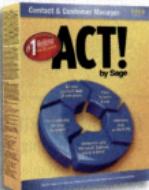
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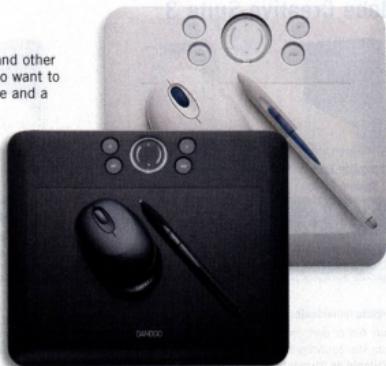
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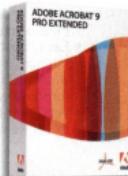
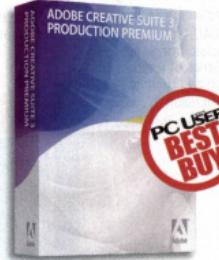
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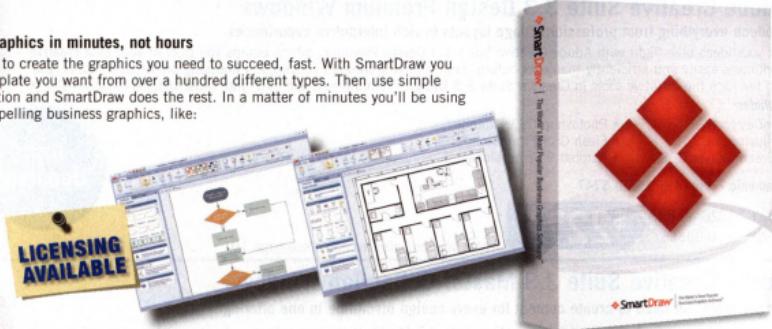
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- Outdoor barbecue?
- Fireplace?
- Update your outdoor living space with the latest designs?

Here is the answer.



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Punch! Home Design Platinum v12

Design your dream home

Punch! Professional Home Design Platinum version 12, continues to expand on its already incredible capabilities! Both landscape and home design options are boundless, in this easy-to-use, two-for-one software package. Now with improved performance and expanded feature set!



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Punch! Home Design Architectural Series 5000

Super fast 3D walk-throughs

Punch! Architectural Series 5000 is a quantum-leap in performance and realism over any other competitive product.

Its 3D redraw speeds are up to FOUR times faster than the competition allowing Hollywood-style walk or fly-through in real time! You'll be amazed at the power, versatility, realism you'll have at your fingertips!



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Autodesk AutoSketch 9

Precision drawing @ home

AutoSketch software provides a complete set of CAD tools for creating professional-quality precision drawings.

- Series of tutorials get you up and running fast.
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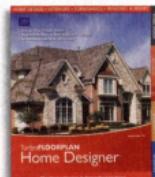
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Professional 2D/3D industry standard CAD software

AutoCAD software Autodesk has just one goal in mind: increasing your productivity. AutoCAD 2009 boosts efficiency with combinable and extensible user interface enhancements that ease overall drafting productivity by decreasing the number of steps to reach a command. Newly designed, innovative features simplify working with layers and help make new users productive as quickly as possible. Easy-to-use navigation tools make finding your way around 3D models a snap. Move to new levels of productivity with AutoCAD software.

Subscription (AUTO198) \$716

Trade from 2008 (AUTO189) \$1599

Trade from 2007 (AUTO190) \$2491

Trade from 2006 (AUTO191) \$3378

Student Edition - 13 Months (AUTO203) \$157

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\$6197

bCode: AUTO196

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Autodesk AutoCAD LT 2009

The world's best selling 2D drafting and detailing tool

AutoCAD LT software simplifies daily tasks with full DWG native format compatibility, the new ribbon interface, menu browser, enhanced layer dialog. Couple these enhancements with drafting features like Dynamic Blocks and annotation scaling, your job just keeps getting easier.

Key features include:

Ribbon - Easily learn and use with this updated interface
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Subscription (AUTO195) \$363

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Autodesk AutoCAD Inventor Professional 2009 Student Edition

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Autodesk 3ds Max 2009 Student Version

3D Solution for games, film & television

Create stunning 3D in less time with Autodesk 3ds Max software. This full-featured 3D modeling, animation, rendering, and effects solution is used to produce top-selling games and award-winning film and video content. Create:

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5. Complete HD Workflow
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Direct to device capture – No PC required

At the touch of a button, rapidly copy analog video from any source in MPEG-4 quality to any USB 2.0 storage device without using a PC. High quality MPEG-4 encoding S-Video and Composite video inputs



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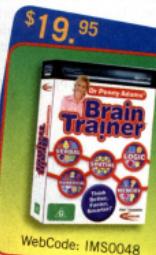
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Journey into 3 mind-bending puzzle packed epic maths adventures!

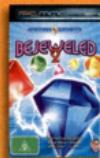
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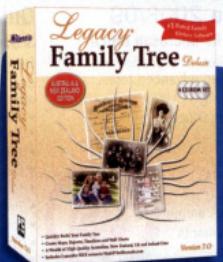
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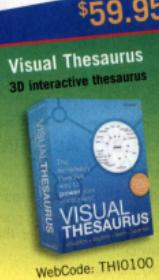
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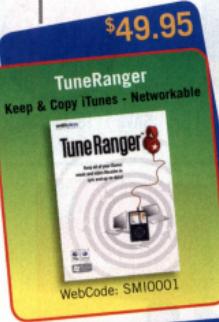
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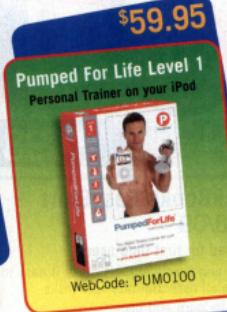


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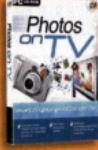
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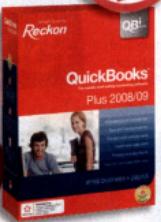
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Time saving features and functionality for any efficient minded business.

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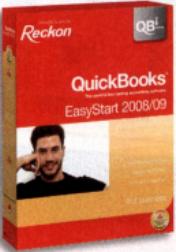
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Point of Sale made easy

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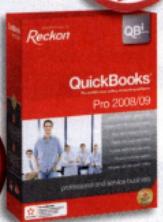
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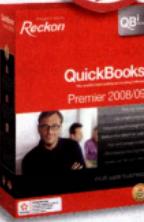
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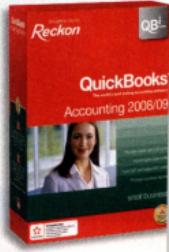
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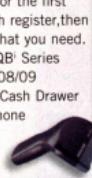
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Reckon Retail Starter Kit 2008/09

The all-in-one POS & Accounting Solution

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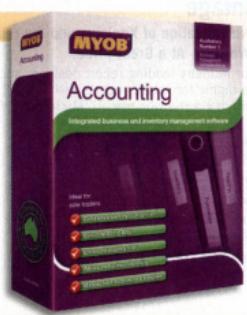
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MYOB Accounting 18

With MYOB Accounting's inventory management system you'll know what's in stock, what's on order and what's committed. The inventory management system is integrated with the sales and purchasing features, so your stock listing is always up to date and accurate.

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MYOB Accounting Plus 18

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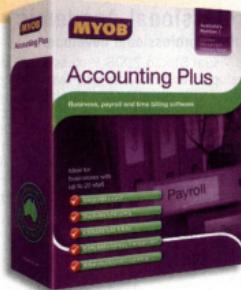
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- Employ no staff
- Have no inventory



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MYOB RetailReady

MYOB RetailReady contains all the software and hardware you need to turn your PC into an effective Point of Sale (POS) solution. RetailReady processes sales fast, reports GST and performs "Cash Ups" in just a few clicks.

Includes:

- MYOB Retail Basics
- Barcode Scanner
- Thermal Docket Printer
- Electronic Cash Drawer



\$872

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MYOB RetailManager v10

Our retail software is designed, developed and tested in close collaboration with existing retail businesses. By automating many of your key store procedures and processes,

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- Identify where you're making money
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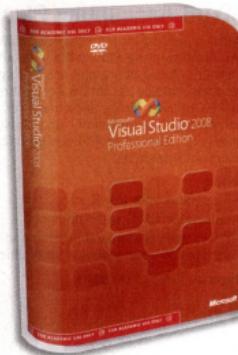
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**FileMaker
Pro 9 Upgrade****Finally, an easy-to-use database software for Small Businesses!**

Combining both power and simplicity, FileMaker Pro 9 gives you the tools you need to connect to the world of data! The award-winning ease of use that is built into every aspect of FileMaker Pro continues to be praised by millions of customers and industry experts around the world. With its easy installation and setup, you'll be up and running in a matter of minutes - not hours or days. Information comes in many forms, from simple cards to Microsoft Excel files, tables to SQL Server data - FileMaker Pro helps you bring it all together with just a few clicks. Convert Excel spreadsheets and other files to FileMaker Pro databases for easier searching, sorting, reporting, and sharing. Or use powerful productivity features designed to make data entry even faster and more accurate.

Full (FIL2000) \$477

Academic (FIL2002) \$294

Academic 5-pack (FIL2005) \$1182

Pack (FIL2003) \$1914

Grade 5-pack (FIL2004) \$1134

plus \$400 Cashback*

AVE \$51 off RRP

You Pay \$288
\$188
After \$100 Cashback

WebCode: FIL20001

Bento by FileMaker**Databases made easy**

Meet Bento, the new personal database from FileMaker that's as easy to use as your Mac. It organises all the details of your busy life in one place. So you can manage contacts, coordinate events, track projects, and prioritize tasks faster and easier than ever before. It's never been easier to get organized thanks to built-in links with Mac OS X.

substance, meet style - It's never been easier to get organized thanks to built-in links with Mac OS X Address Book and iCal, ready-to-use templates, and elegant themes designed by Mac artists.

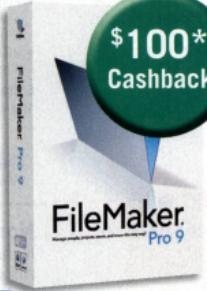
Bring it together - From contacts and calendars, to projects and events, you can organize just about every type of information you have - all from one place, with this one program.

Get things your way - Just point and click or drag and drop to change the look of any form and see information in a way that makes sense to you.

User (FIL2016) \$129



World Editors Choice Quoted:
Bento is a lightweight personal database application that, at its core, is about making databases accessible and easy for the casual user. Bento's look, inspired by the look of iTunes and iPhoto, will be familiar to most Mac users.



\$100*
Cashback

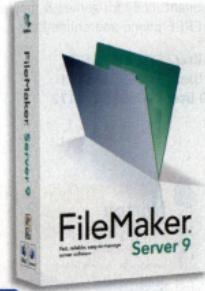
**FileMaker
Server 9 Upgrade****Share your database with ease**

FileMaker Pro has outstanding peer-to-peer sharing built right in. So why add a server? There are three key reasons: expanded availability, enhanced security and increased performance.

Simply install FileMaker Server software on a dedicated computer and upload your FileMaker Pro databases to the server. You and your team will instantly realize how fast and easy it is to access your databases 24/7, schedule automated backups, and find information and much more! Whether you have a team of two or a department of hundreds, FileMaker Server makes it effortless to securely share your FileMaker Pro databases with Windows and Mac OS users on your network or over the Web.

Academic (FIL2011) \$977

Full (FIL2009) \$1578



\$939

SAVE \$51 off RRP
WebCode: FIL2010

**\$79**

WebCode: FIL2015

FileMaker**Licensing Program**

FileMaker licensing options give you a choice of licensing and maintenance options designed around the way you work. Our goal is to provide you with the easiest software licensing options ever - no points, no complex contracts, just simple options that let you get the software you need at a price you can afford. For corporate or government organizations CSW-IT specialises in offering the Annual Volume License Agreement (AVLA).

Annual Volume License Agreement (AVLA)**Who should purchase this type of license?**

Corporate or government organisations that need at least 10 licenses of FileMaker software. This option provides an easy, flexible way to save time and money on volume licensing.

How does it work?

By purchasing an AVLA you are purchasing an annual right to use the software. At the end of the year, you can choose to renew for the next year, purchase the software or de-install the software. If the option is to purchase then a discount is available for each year the software has been installed.

Benefits

- Purchases can start with a low 10-seat minimum.
- Mix and match platforms, products (including FileMaker Pro, FileMaker Pro Advanced, FileMaker Server, FileMaker Server Advanced) and upgrades for larger tier discounts.
- No minimums for adding seats to an existing VLA.
- Volume licensing savings begin at 13% off single user packages; greater discounts for larger orders.
- The AVLA includes 12 months maintenance.



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Security

Norton AntiVirus 2009 - 1 User

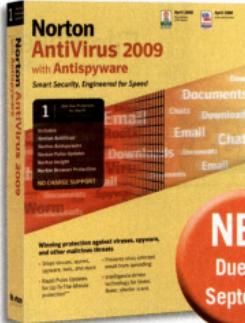
Efficient antivirus solution

- Re-engineered for speed
- Smarter for faster, fewer, shorter scans
- Up-to-the-minute protection against spyware, viruses, worms, bots and other threats.
- Easy install in < 1 minute, uses < 10MB of memory.
- Silent mode for games & movies
- FREE phone and online help

3 User (SYM9952) \$77

5 User (SYM9953) \$111

10 User (SYM9954) \$172

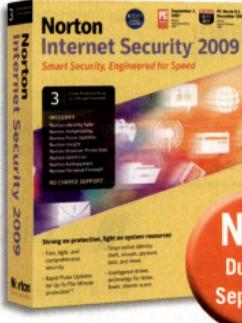


NEW
Due late
September

SAVE \$6 off RRP

WebCode: SYM9951

\$43



NEW
Due late
September

SAVE \$13 off RRP

WebCode: SYM9956

\$86

SYMANTEC IS BACKUP



Save 50% off the retail price of Symantec's world leading backup solutions for SMBs -Symantec Backup Exec and/or Symantec Backup Exec System Recovery when you purchased a minimum 25 user licenses of Symantec Endpoint Protection of Multi-tier Protection security solutions.

Save 50% off the retail price of Symantec's world leading Endpoint Protection and/or Multi-tier Protection SMB security solutions when you switch from your existing security software to Symantec.

TRY TODAY - 60 Day FREE Trial of End Point Protection. Download today at www.symantec.com/ap/citysoftwaredownload

Norton Internet Security 2009

Faster than ever before

- Re-engineered for speed
- Rapid Install averaging < 1 minute, uses < 10MB of memory.
- Unique technology for faster, fewer scans
- Up-to-the-minute protection against identity theft, spyware, viruses, spam, bots, keyloggers and new threats
- Silent mode for games & movies
- Wireless network security
- Fully configurable

5 User (SYM9957) \$129

10 User (SYM9958) \$219

Norton 360 2.0 All-In-One Security 3 User

Fast PC & internet security in a box!

- Easy security, backup and tuneup for up to 3 PCs
- Award-winning antivirus, antispyware and firewall protection
- Stronger protection as you shop & bank online
- New wireless network security features
- Flexible backup options now include HD-DVD, Blu-ray Disc, iPod
- 2GB of secure online storage also included

5 User (SYM9927) \$162

10 User (SYM9928) \$288



SAVE \$25 off RRP

WebCode: SYM9925

\$104

Norton Ghost 14.0

It's back and better than ever

Full system backup - Backs up everything on a hard drive or partition

New Features Include:

- PTP backup
- Offsite backup
- Symantec ThreatCon integration
- Exclusive Google Desktop integration
- Exclusive Remote management tool



\$79

SPECIAL OFFERS FOR SMBs

For a limited time, Symantec is offering SMB customers significant discounts on the cost of our world-leading security, backup and recovery solutions:

SYMANTEC IS SECURITY



SYMANTEC IS SMB

We understand your business and we have a range of products and solutions to suit the needs of SMB's. Our security and backup software is simple to install, easy to use and can be managed centrally.

A single licensing and maintenance program helps lower cost and our Global Intelligence Network keeps you up-to-date with the latest global, industry and local threats and solutions.

security & System Tools

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**CITY
SOFTWARE**

Black Tie Service, Plain Wrap Prices*

VG Internet Security 8.0 - 3 User

The Ultimate Security Solution

Anti-Virus, Anti-Spyware, Anti-Spam, Firewall and
FileScanner. Identifies and stops threats before they
become a problem.

Real-time protection against all Internet threats

Real-time security while you surf, search and chat online

Stops junk e-mail and spam based identity theft attacks

Top-quality protection that won't slow your system down

Free local telephone support, plus e-mail support
around the clock

1 User (AVG0006) \$69

2 Users (AVG0007) \$145

3 Users (AVG0008) \$250

*Image for illustration purposes only

SAVE \$4 off RRP

\$78

WebCode: AVG0009



Kaspersky Internet Security 2009 - 3 User

Proven anti-virus protection

Kaspersky Internet Security 8 provides you with the same proven anti-virus protection as Kaspersky Anti-Virus, together with additional features including Central Control, a personal firewall, an anti-spam filter, privacy Control and more.

NEW!



SAVE \$15 off RRP

\$84

WebCode: KAS0004

BullGuard Internet Security Suite 8.0 3 User

Includes BullGuard Backup + 5GB online storage

Daily updates, super fast scan times, small footprint, firewall, anti-spam, anti-phishing, anti-spyware.

- Backup includes FREE 5GB online storage, backup while idle, integrates with internet explorer.
- Access your files and data from anywhere online. FREE 24 x 7 support with instant chat and remote assistance built all within the program!



SAVE \$19 off RRP

WebCode: BUL0007

\$79

Black Tie Service, Plain Wrap Prices*

AVG Anti-Virus Network Edition 8.0 - 5 PCs

Centrally Controlled Anti-Virus Protection

- Protection for workstations and file servers
- Remote administration of all computers on the network
- Centralised installation and configuration with full statistical reporting
- Free local technical support, plus e-mail support around the clock

10 PCs (AVG0012) \$380

20 PCs (AVG0013) \$660



*Image for illustration purposes only

SAVE \$5 off RRP

WebCode: AVG0011

\$199

Acronis True Image 11 Home

Powerful backup that's easy to do

A complete data protection suite – backup your entire PC, your data, and your OS and applications.

- Try and Decide: easy rollback of system changes.
- Smart Scheduling: start backup when user is idle, login/logout and other events.
- Protect your archives with password-based encryption.



SAVE \$11 off RRP

WebCode: MAN0102

\$68

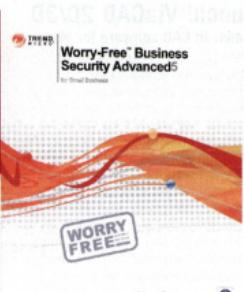
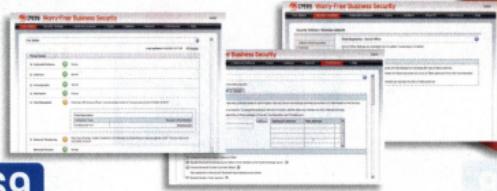
Trend Micro Worry Free Business Security Advanced - 5 Node

Protect your small business and its reputation against data theft, risky websites, and overwhelming spam

For safer, smarter, simpler security blocks web-based threats and other malware to protect your business assets and customer information. Only Trend Micro offers web threat protection that addresses the exponential growth of web threats with constant updates that won't slow your PCs down.

Knowledge base rapidly deploys to defend all our customers like a global neighbourhood watch. Worry-Free Business Security Advanced includes InterScan Messaging Hosted Security to block spam before it reaches your network and protects Microsoft Exchange and Small Business Servers, Microsoft Windows servers, PCs, and laptops.

Node (TRM9003) \$1139



Safer, Smarter, Simpler

WebCode: TRM9002

\$569



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Apple Mac OS X Leopard

300+ new features

Add a new Mac to your Mac. Mac OS X v10.5 Leopard is packed with over 300 new features, installs easily, and works with the software and accessories you already have. Choose a single-user license for home or office. Alternatively if you have more than one Mac at home, choose the 5 user Family Pack.

5 User
(APP0349) \$236



SAVE \$10 off RRP

WebCode: APP0350

\$148

Norton AntiVirus 11.0

#1 AntiVirus Software for Mac

It removes viruses automatically, cleans infected Internet and email downloads, and protects against advanced online threats and attacks that target newly discovered operating system and application vulnerabilities. Use the enhanced, all-new dashboard widget to quickly check your system's virus protection status. Compatible with new Mac OS X v10.5.



SAVE \$7 off RRP

WebCode: SYM9799

\$52

Microsoft Office 2008 for Mac Home and Student Edition

3 User Home Office Suite

The perfect Office for families and students. Microsoft Office 2008 for Mac Home and Student Edition is more powerful and easier to use, helping you to achieve more and simplify your day, for less. New features, intuitive new look and compatibility with Office for Windows will unleash your productivity at a budget-friendly price.

- Word 2008
- Excel 2008
- PowerPoint 2008
- Entourage 2008
- Microsoft Messenger

SAVE \$40 off RRP
WebCode: MSA3770

\$189

[MICROSOFT PRICE CHECKER](#)

Harris Technology \$198
JB Hi-Fi \$227

3 User



Punch! ViaCAD 2D/3D

Leader in CAD software for Mac

In ViaCAD, 3D designs automatically create 2D details, plans and elevations with a single mouse click. It creates section and detail views, Bill of Materials lists, and includes complete 3D editing tools, annotation, and dimensions, among many other practical features. The software also delivers industry standard interoperability including Google SketchUp, AutoCAD 2007, Adobe Illustrator and other common 3D formats.

- LogiCursor Thinks As You Draw, Simple interface with LogiCursor technology aids in visually anticipating your moves, partnering with you in the design process.
- 2D/3D Seamless Interface (patent pending), Toggle between 2D and 3D with one mouse click. Start in 2D, add 3D with surface modeling tools. Then click back to 2D, making precision editing a snap.

SAVE \$11 off RRP
WebCode: PUN0027

\$138



Parallels Desktop 3.0 - Mac

Run Windows Vista on your Mac

Parallels Desktop for Mac enables you to run Windows, Linux, and more side-by-side with Mac OS X on any Intel-powered Mac, without rebooting. With Parallels' award-winning virtualisation technology, you can run Mac OS X and your favorite Windows applications at the same time. You can even drag-and-drop files between desktops!



SAVE \$12 off RRP

WebCode: PAR0003

\$92

Microsoft Office 2008 - Mac Perfect for business

Microsoft Office 2008 for Mac is more powerful and easier to use, helping you to achieve more and simplify your day.

- Word 2008
- Excel 2008
- PowerPoint 2008
- Entourage 2008
- Exchange Support

Upgrade (MSA3774) \$292



SAVE \$155 off RRP
WebCode: MSA3773

\$494

[MICROSOFT PRICE CHECKER](#)

Harris Technology \$499
Officeworks \$649

Bento by FileMaker

Databases made easy

Meet Bento, the new personal database from FileMaker that's as easy to use as your Mac. It organises all the details of your busy life in one place. So you can manage contacts, coordinate events, track projects, and prioritize tasks faster and easier than ever before. It's never been easier to get organized thanks to built-in links with Mac OS X.

5 User (FIL2016) \$129



WebCode: FIL2015

\$79

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Apple iLife 08

Entry level multimedia suite

iLife '08, a major update to Apple's award-winning suite of digital lifestyle applications, delivers significant upgrades to iPhoto, iWeb, iMovie and iDVD, plus a completely reinvented iMovie that offers a revolutionary new way to enjoy, edit and share your video.

 User
PP0324) \$126

 SAVE \$7 off RRP
WebCode: APP0323

\$92

Microsoft Office 2008 for Mac Special Media Edition

Office Apps & Creative Suite

Office 2008 for Mac Special Media Edition is more powerful and easier to use, helping the media savvy Mac user achieve more while simplifying the management of digital assets.

grade (MSA3772) \$387


 SAVE \$257 off RRP
WebCode: MSA3771

\$592

MICROSOFT PRICE CHECKER ▶

 Harris Technology \$657
Officeworks N/A

Apple Aperture 2

Professional RAW photo editor

Aperture 2 gives photographers incredible tools to manage massive libraries, speed through photo edits, make essential image adjustments, and deliver photos online and to print using one simple, integrated workflow. Whether you shoot RAW or JPEG, Aperture lets you get the most out of your photography.



WebCode: APP0372

\$259

Apple iWork 08 for Mac

Entry level work suite

Apple's amazing productivity suite for the Mac, iWork '08 includes three applications: Pages '08 for word processing with an incredible sense of style; Numbers '08 for powerful, compelling spreadsheets made easy; and Keynote '08 for cinema-quality presentations for everyone.

 5 User
(APP0326) \$121

 SAVE \$6 off RRP
WebCode: APP0325

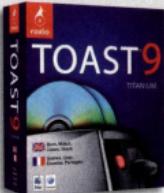
\$93

Roxio Toast 9 Titanium

Leading Mac burning suite

Compress, convert and compile videos as well as capture audio from any source. Burn discs on the Mac with a host of improved features such as:

- Import and create HD projects
- Burn HD TiVo TV shows and movies
- Stream your recorded home movies and more to your internet connected Mac or PC

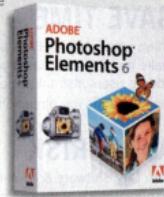

 SAVE \$18 off RRP
WebCode: ROX5009

\$161

Adobe Photoshop Elements 6

Top selling home photo editor

Adobe Photoshop Elements 6 software for Macintosh combines power and simplicity so you can go beyond the basics. Make your photos look their best, share them in creative ways, and easily find and view them. Photoshop Elements also works great with iPhoto.

 Academic
(AEP9552) \$76

 SAVE \$40 off RRP
WebCode: ALD9636

\$109

Top selling Mac software

Accounting

 MYOB AccountEdge MYB0091 \$523
MYOB FirstEdge MYB0090 \$135

Database Tools

FileMaker Pro 9	FIL2000	\$477
FileMaker Pro 9 5-User	FIL2003	\$1914
FileMaker Pro 9 5-User Upg	FIL2004	\$1134
FileMaker Pro 9 Academic	FIL2002	\$294
FileMaker Pro 9 AE 5-pack	FIL2005	\$1182
FileMaker Pro 9 Adv AE	FIL2008	\$479
FileMaker Pro 9 Advanced	FIL2006	\$756
FileMaker Pro 9 Adv Upg	FIL2007	\$473
FileMaker Pro 9 Upgrade	FIL2001	\$288
FileMaker Server 9 Upgrade	FIL2010	\$939

Design Tools

Corel Painter X	COR8700	\$598
Corel Painter X Academic	COR8702	\$132
Corel Painter X Upgrade	COR8701	\$335
Extensis Suitcase Fusion 12	EXT0084	\$169
Enfocus PitStop Pro 7.2	ENFO003	\$1155
Punch! Home Design Studio	PUN0020	\$170
QuarkXPress 8	QUAO059	\$1275
QuarkXPress 8 Academic	QUAO061	\$159
QuarkXPress 8 Upgrade	QUAO042	\$472

Education

Britannica 2008 Ref Suite	MND1181	\$89
Mavis Beacon Typing 17	BRD0030	\$50

Graphic Suites - Student Editions

Adobe CS3.3 Design Premium	ADSO018	\$419
Adobe CS3.3 Design Standard	ADSO020	\$280
Adobe CS3.3 Master Collection	ADSO022	\$697
Adobe CS3 Production Premium	ADSO012	\$422
Adobe CS3 Web Standard	ADSO014	\$282

Multimedia

I-Studio for iPod	MANO104	\$28
NewTek LightWave 3D v9.3	NEW0020	\$1299
Roxio Crunch	ROX5001	\$68
Roxio Popcorn 3 for Mac	ROX5003	\$68

Photo Editing (Adobe)

Photoshop CS3 Ext Student	ADSO016	\$216
Photoshop Lightroom 2	ALD9662	\$386
Photoshop Lightroom 2 Upg	ALD9582	\$139
Photoshop Lightroom 2 Edu	AEP9567	\$162

Productivity (Adobe)

Acrobat 9 Professional Edu	AEP9555	\$182
Acrobat 9 Professional	ALD9649	\$382
Acrobat 9 Pro Upgrade (Pro)	ALG9566	\$203
Acrobat 9 Pro Upgrade (Std)	ALG9585	\$203

System Tools

Alsoft DiskWarrior 4.00	ALS0003	\$143
Alsoft DiskWarrior 4.00 Upg	ALS0009	\$88

Web/Internet

Adobe Dreamweaver CS3	ALD0082	\$575
Adobe Fireworks CS3	ALD0084	\$432
Microsoft Expression Studio	MSS0082	\$934
Mr Sites - Internet In a Box	MRS0001	\$99



How do I buy software licenses?

Three popular ways to buy software licenses.

FULL PACKAGED PRODUCT (FPP)

SUITED FOR HOME USE AND FOR SMALL BUSINESSES THAT NEED LESS THAN 5 LICENSES.

Full Packaged Product (FPP) is software that you buy off the shelf in store or from buying through our online store. Each box contains a copy of the software that you install on your computer and one or more licenses. This option is ideal for the home user and small businesses that need less than five software licenses.

ORIGINAL EQUIPMENT MANUFACTURERS (OEM)

SUITED TO HOME USERS AND ORGANISATIONS WITH MINIMAL HARDWARE REQUIREMENTS.

With OEM you will receive the software already installed when you buy the hardware (such as a laptop). The software licenses are attached and owned by the computer as opposed to FPP which is owned by the purchaser. That means the software cannot be transferred to another computer. This option is suited to home users and organisations with minimal hardware requirements.

VOLUME LICENSING

SUITED TO SMALL/MEDIUM BUSINESS WHO REQUIRE 5 OR MORE LICENSES.

A software license acquired through Volume Licensing is a simple and cost-effective way to purchase multiple licenses under a single agreement. Volume Licensing offers volume discounts and provides an effective way for you to add the latest products and upgrades to your business. This is best suited to businesses that plan to grow their business over time helping to provide a seamless IT management and procurement process. Licenses can be transferred from one computer to another, and organisations with as few as 5 PCs will benefit from this option.

Benefits of Volume Licensing

SAVE MONEY

The equation with volume licensing is very simple – the more you buy, the more you save. Businesses are sometimes confused trying to understand the different ways that volume licensing discounts are applied. This is where City Software and CSW-IT serve Australia best. For over 16 years City Software has served Australian businesses' software needs with excellence making City Software one of Australia's widely recognised licensing experts on over 50 licensing programs.

Businesses can also save money by standardising software and purchasing software maintenance or support programs such as Software Assurance and Upgrade Protection. When purchasing these additional programs you may also benefit from receiving free training, support services and home support rights whilst receiving the biggest benefit of all ... access to new upgrades that arise during your active agreement term.

SAVE TIME

When compared to FPP, purchasing volume licensing is less time consuming. Rather than having to make multiple purchases you can consolidate all your purchases into one software licensing agreement. Adding users also takes no time at all. Simply purchase extra licenses and make the installations via the media kit you already have.

AVOID RISK

With City Software & CSW-IT's assistance we will ensure that you are legally compliant with the software manufacturer's agreements. We also track your purchases, becoming your Software License Watchdog, reducing the risk of you over-purchasing – a common trap for small/medium businesses.

Volume Licensing

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CITY SOFTWARE[®]

Black Tie Service, Plain Wrap Prices[®]

's as easy as 1-2-3

FIND A SOLUTION

We assist you in selecting the best suited software for your business. Contact one of our licensing consultants on 1300 658 600 or via email at licensing@citysoftware.com.au

REQUEST A QUOTE

We will prepare a quote for you that is sure to be unbeatable. In most cases a quote will be prepared for you by the end of the day.

RECEIVE LICENSES

An email will be sent containing the license keys. Expected times may vary from product to product due to vendor licensing processing time. If physical media has also been ordered this will be despatched by courier in a timely manner.



Volume Licensing Partners

 **Adobe**

 **Microsoft**

 **NUANCE**

 **roxio**

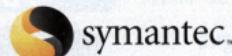
 **KASPERSKY**

 **nero**

 **TREND MICRO**

 **Business Objects**
an SAP[®] company

 **Autodesk**

 **symantec**

 **COREL**

 **Quark**
Authorized Reseller

 **AVG**

 **SmartDraw**



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Related Products

Mini USB
Notebook
Webcam



SAVE \$44 off RRP
WebCode: SIG0017

\$24.95

Logitech
2.4GHz
Cordless
Presenter



SAVE \$31 off RRP
WebCode: LOG3495

\$62

Griffin iCurve
Elevator
Laptop
Stand



SAVE \$4 off RRP
WebCode: GRI0001

\$75

GNX LCD
Cleaning Kit



SAVE \$4 off RRP
WebCode: GNX0001

\$15

Targus
Notepac 200
Edition 15"



SAVE \$14 off RRP
WebCode: TAR0001

\$45

Logitech
V20 USB
Notebook
Speakers



SAVE \$21 off RRP
WebCode: LOG3508

\$78

Compaq C792VU Notebook

Perfect for home use

- 2.13GHz
Intel Celeron
- 1GB
Memory
- 160GB
Hard Drive
- 5-in-1
Card Reader
- Vista
Home Basic

\$200*
Cashback!



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Kingston
**RAM
UPGRADE**

UPGRADE TO 2GB RAM
FOR ONLY \$59

WebCode: KNM4333

SAVE \$230 off RRP
WebCode: COP0792

You Pay \$669
\$469

After \$200 Cashback

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You Pay \$668
\$569

After \$99 Cashback

Asus Eee PC 901 Notebook

Perfect for students!

- 1.6GHz
Intel Atom
- 1GB
Memory
- 12GB
SSD Drive
- Webcam
Built In
- XP
Home



WebCode: ASU1042

\$669

Compaq C791WU Notebook

Great for Web!

- 1.86GHz
Intel Dual Core
- 2GB
Memory
- 200GB
Hard Drive
- Webcam
Built In
- Vista
Home Premium

\$100*
Cashback!



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SAVE \$124 off RRP
WebCode: COP0791

You Pay \$875
\$775

After \$100 Cashback

Lenovo SL500 ThinkPad

Robust & durable solution

- 1.8GHz
Intel Core 2 Duo
- 1GB
Memory
- 160GB
Hard Drive
- Bluetooth
Built In
- Vista
Business



Kingston
**RAM
UPGRADE**

UPGRADE TO 2GB RAM
FOR ONLY \$63

WebCode: KNM6671

SAVE \$50 off RRP
WebCode: LENO114

\$1099

HP DV4-1004TU Notebook

HP Quality and service

- 2.26GHz
Intel Core 2 Duo
- 2GB
Memory
- 250GB
Hard Drive
- Webcam
Built In
- Vista
Home Premium

\$100*
Cashback!



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Kingston
**RAM
UPGRADE**

UPGRADE TO 4GB RAM
FOR ONLY \$79

WebCode: KHM2591

SAVE \$136 off RRP
WebCode: HPR1003

You Pay \$1263
\$1163

After \$100 Cashback

Business Notebooks

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Acer 5620 Extensa

Pro Stability

- 2.2GHz Intel Core 2 Duo
- 2GB Memory
- 250GB Hard Drive
- Webcam Built In
- XP Professional

\$99*
Cashback!

citysoftware.com.au/promotions - Ends 31/09/2008

SAVE \$300 off RRP
WebCode: ACN1449

You Pay \$1098
\$99
After \$100 Cashback

P DV31116TX Notebook

Power & portability

- .86GHz Intel Dual Core
- 2GB Memory
- 320GB Hard Drive
- Bluetooth Built In
- Vista Home Premium

\$100*
Cashback!

citysoftware.com.au/promotions

SAVE \$135 off RRP

WebCode: HPR3116

You Pay \$1264
\$1164
After \$100 Cashback

Apple MacBook Air

Lightweight, Ultrathin

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Fingerprint security

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- Vista Business

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Built In
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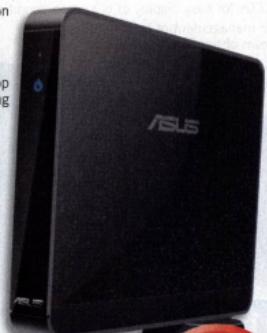
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ThinkCentre M57 system offers industry-leading technologies, excellent management capabilities and IBM service and support.



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Includes XP
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Brightness
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Quality brand, Quality picture

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Resolution
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Brightness
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Contrast Ratio

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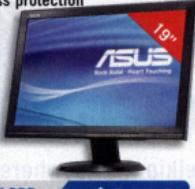
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Brightness
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Contrast Ratio

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Asus VW222s 22" LCD Monitor

Perfect for gaming

680x1050
Resolution
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Response Time
300 cd/m²
Brightness
2000:1
Contrast Ratio

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Designed for business

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Great for CAD & graphics

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Response Time
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Brightness
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Protection for 1 to 15 servers

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Well suited for the most demanding multimedia presentation applications.



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Superb quality at an affordable price

- Designed specifically to get the best out of your presentations
- Low power consumption of 231W and just 5.8W in standby mode 2 year warranty

800x600 Resolution
4:3 Picture Ratio
2000 ANSI Lumens



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\$958

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LCD technology continues to bright images ideal for smaller rooms and brightly lit environments.



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WebCode: PAN0165

\$2482

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Watch one channel whilst recording another

Plug this stick into an available USB slot on your PC or notebook, and schedule, record, time-shift and watch two of your favourite TV shows.



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\$126

ViewSonic 3-LCD Data Projector

Deliver powerful presentations

- Connect a computer or add a video source for dynamic meetings and presentations
- Capable of displaying HDTV signals

Bright choice for mobile presenters

1024x768 Resolution
4:3 Picture Ratio
2200 ANSI Lumens



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NEC 40" Full HD LCD TV

Perfect for office or home theatre

With superb sound and superior picture quality an excellent addition to any Home Theatre environment.



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\$1718

Dvico TViX PVR 2230 HDTV

World's smallest Analogue & DVB-T PVR

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\$365



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Microsoft Wired Desktop 500

Great value for money

Enjoy one-touch access to e-mail, the Web, and frequently used features. Control media activities with the touch of a button, and work worry-free with new spill-resistant design.



SAVE \$6 off RRP
WebCode: MST8412

\$33

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Harris Technology \$39.95

Microsoft Wireless Optical Desktop 700 v2

Best value wireless mouse & keyboard

Enjoy freedom from desk clutter with an optical mouse and a compact keyboard design in Microsoft's most affordable wireless desktop.



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\$41

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Harris Technology \$49.95

Microsoft Digital Media Keyboard 3000

Optimised for Windows Vista Flip 3D

Designed to fit the digital lifestyle, allowing users to bring digital media to life with one-touch access to photos, Windows Media Player, My Favorites Keys and Zoom.



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\$41

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Officeworks N/A
\$49.95

Microsoft LifeCam VX-1000

High quality picture

With simple setup and one-touch calling, the Microsoft LifeCam VX-1000 makes it easier than ever to see and hear your friends and family over the Internet.

- 640 x 480 @ 30fps
- Built-in microphone
- USB Connection
- Windows Compatible



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Microsoft Basic Optical Mouse - Black

Optical technology at a great price

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Designed for a portable lifestyle.

Go mobile with this portable ergonomic mouse. Easily enlarge and edit details with the new magnifier and scroll four ways with the innovative 4-way scrolling.



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Microsoft Wireless Laser Desktop 4000

Leather feel cushion wrist rest

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WebCode: MST8460

\$106

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JB Hi-Fi
Dick Smith \$129
\$127

Microsoft LifeCam NX-3000

Ideal for notebooks

This sleek, compact webcam is designed for notebook computers, making it easier than ever to keep in touch with friends and family anywhere.

- 640 x 480 @ 30fps
- High Definition 1.3 megapixel still photos
- Built-in microphone
- Automatic face tracking cancellation



SAVE \$25 off RRP
WebCode: MST8476

\$54

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Microsoft Mobile Memory Mouse 8000

USB Flashdrive with 1GB Memory

This comfortable, ground-breaking mouse is the most advanced mobility tool available. Its transceiver also has a 1 GB Flash Memory, which frees up USB ports and lets you easily back up and transfer files.



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WebCode: MST8472

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 Trendy & trendy Clip design
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 AA battery included



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\$49.95

Kaiser Baas 8" Photo Frame Woodgrain

Show all your favourite photos
 This Photo frame looks to impress with its
 frame.
 supports memory Cards up to 8GB
 supports images up to 16MB
 includes remote
 800 x 600
 resolution



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WebCode: KAB0020

\$195

Apple iPod nano 8GB Pink

Small iPod with one very big idea

It's the small iPod with one very big idea: Video. Now the world's most popular music player lets you enjoy TV shows, movies, video podcasts, and more. The larger, brighter display means amazing picture quality. In eye-catching colors, iPod nano is stunning all around.

Black (APP0337) **\$239**Green (APP0336) **\$239**Blue (APP0335) **\$239**

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WebCode: APP0380

\$239

Edifier S330 2.1 Speaker System

Listen to music in style

Piano-finished 2-way wooden enclosure 18W satellites and a huge 40W 6.5" wooden enclosure sub-woofer.



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WebCode: EDI0004

\$139

AVLabs MYTube Video Speakers for iPod

Audio Visual iPod dock

Featuring an awesome 7" widescreen display, the MYTube takes your iPod video and images to a whole new level of enjoyment

- 3-in-1 CARD READER (SD/MMC/MS)
- Supports video, music playback and photo viewing



*iPod not included

SAVE \$58 off RRP
WebCode: AVL1012

\$341

AVLabs 1.5" Digital Photo Frame Keyring

Keep your photos in your pocket

This petite and fun photo frame has a 1.5" LCD screen allowing you to display up to 80 of your digital images as a slideshow



SAVE \$10 off RRP
WebCode: AVL1011

\$19.95

10.4" Digital Photo Frame Black

Enjoy your favourite memories

This 10.4" digital photo frame is one of the most feature packed photo frames on the market, with 1GB of onboard storage.

- 800 x 600 Resolution
- Photo, Audio, Video playback
- SD, MMC, MS, XD, CF card support
- Built in speakers



10.4" Digital Photo Frame White
(SIG0019) **\$209**

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WebCode: SIG0020

\$209

Ability 15" Touch Screen Photo Frame

An art gallery in a picture frame

Schedule set different photos or pictures to display anytime you want.

- Pre-installed with over 2000 images in almost every genre
- 2GB Memory
- 1280x1024 Resolution
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- Wall Mountable



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\$449



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- Support OS: Win 98SE ME 2000/XP/Vista, MAC OS 8.6 & above



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Canon IXUS 85 IS - Silver

Personalised Style for Capturing Fun

- The IXUS 85 IS has powerful presence and performance and will certainly stand out in a crowd.
- Advanced technologies include Optical Image Stabilizer, Motion Detection Technology and Noise Reduction Technology.



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\$347

Sony Cyber-shot DSC-T70S Silver

Superb clarity in all situations

- HD output, photos can look even more spectacular
- The innovative Carl Zeiss lens brings the action close while the Face Detection feature optimises natural tones in faces.



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Canon EOS 1000D Digital SLR Single Lens Kit

The Enthusiasts Choice

- Canon developed CMOS sensor and DIGIC III Image Processor combine to deliver the high image quality for first time DSLR users.
- LiveView offers the familiarity of a compact camera, enabling the photographer to preview images in real time and to compose images in confined spaces or over crowds.



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Sony DSCW150S - Black

Robust Quality

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- Smile Shutter technology is also included, letting you instantly capture smiles the moment they happen.



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Great for Outdoor Adventures

- Waterproof up to 3m and shockproof up to 2m
- New underwater movie mode
- Wide angle lens for even broader shooting.



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WebCode: OLY0147

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Digital Cameras & Storage Media

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FUJIFILM FinePix J10 Digital Camera

MegaPixel at a great price

Pictures are sharp, clear, and vivid, perfect for enlarged display or printing.
This compact perforator lets you enjoy a range of picture-taking options, from atmospheric wide-angle scenes to dramatic close-ups.



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WebCode: FJI0081

FUJIFILM FinePix Z20fd Digital Camera - Green

capture photos in any scene

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Digital Camera

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2x optical zoom lens expands your shooting reach, bringing you close enough to capture subtle expressions.



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- Enhanced reliability



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LTO Ultrium 2 200/400GB

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- Lower head wear
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WebCode: FJI0028

LTO Ultrium 3 400/800GB

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- Enhanced reliability
- FujiFilm servo technology



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Increased cartridge capacity NANOCUBIC thin-film coating process.



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LaCie 250GB Mobile Disk Hard Drive

Store & exchange anywhere

The ideal travel companion for your computer, the LaCie Mobile Disk delivers generous storage capacities at an affordable price

- USB bus-powered
- MacOS X 10.3, Microsoft Windows Vista / 2000 / XP
- Includes backup software

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WebCode: LAC0793

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LaCie 320GB Rugged All Terrain Hard Disk

Great for tradesmen

The unique scratch-protected aluminum shell and shock-resistant rubber bumper make the LaCie Rugged Hard Drive especially resistant to harsh elements for extra protection along the road of your adventures.

- FireWire 800, IEEE1394 FireWire, USB connectivity



250GB (LAC2005) \$191

SAVE \$66 off RRP

WebCode: LAC1140

\$233

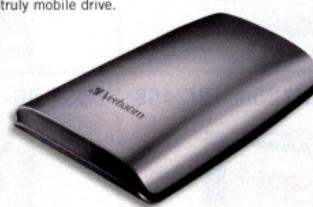
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Weighs only 150g

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160GB (VBM9528) \$110
250GB (VBM9529) \$145



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WebCode: VBM9530

\$155

LaCie 750GB Hard Disk Design by Neil Poulton

Sophisticated style

Designed by Neil Poulton, this hard disk adds sophisticated style to your desktop yet its presence is quiet and unobtrusive. It has a unique distinguishing feature - a cool, blue LED strip on its underside that creates an ambient glow. Its subtle, all-black design blends perfectly into dark home entertainment setups and workstations. Very small for its vast capacity, this lightweight, compact drive has a fashionable, mirror-polished finish.

- USB Connectivity
- MacOS X 10.3 or later, Windows Vista / 2000 / XP
- Includes one click backup software

1TB (LAC1132) \$251



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LaCie d2 1TB Quadra Hard Disk

Great connectivity options

The LaCie d2 Quadra Hard Disk provides an incredible 1TB capacity in a relatively compact device.

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LaCie 2big 1TB Network (2-disk RAID)

Design by Neil Poulton

The 2big Network can act as a file-sharing server, a backup server or an FTP server. Easily share important files and make them accessible from anywhere via FTP or any web browser. With this affordable 2-disk RAID solution with Ethernet interface, get maximum storage capacity in BIG mode or maximum security in SAFE mode.

2TB (LAC1124) \$926



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WebCode: LAC1123

\$537

Verbatim 500GB 3.5"

USB 2.0 Portable Hard Drive

Nero back up software included

Verbatim's External Hard Drive provides high capacity storage back up for all file types offering high performance and reliability to both the professional and home user.

- Sleek 'black steel' space saving design
- Windows Vista Compatible
- Verbatim 2 Year Warranty

750GB (VBM7511) \$172
1TB (VBM512) \$237

Verbatim 500GB 3.5"

USB 2.0 Portable Hard Drive

Nero back up software included

Verbatim's External Hard Drive provides high capacity storage back up for all file types offering high performance and reliability to both the professional and home user.

- Sleek 'black steel' space saving design
- Windows Vista Compatible
- Verbatim 2 Year Warranty

750GB (VBM7511) \$172

1TB (VBM512) \$237



SAVE \$28 off RRP

WebCode: VBM7510

\$126

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Maxtor 160GB OneTouch 4 Mini Hard Drive

table OneTouch Backup

ull-featured, portable backup and storage solution with Maxtor SafetyDrill for complete recovery of your PC hard drive's contents in case of a system crash or virus. Ideal backup and storage for carrying your digital portfolio with you. Two levels of security against unauthorized use - Maxtor DrivePass & data encryption. Customizable Maxtor OneTouch button.

160GB (MXT4024) \$169



\$119

WebCode: MXT4023

Maxtor 640GB OneTouch 4 Plus Hard Drive

Additional storage for your PC

Provide a safe haven for your entire working environment with a Maxtor OneTouch 4 Plus personal storage solution. To prepare in case of a system crash or virus attack, the Maxtor SafetyDrill feature automatically creates a snapshot of the entire contents of your PC's hard drive which can be readily booted for an easy and complete recovery.

- IEEE 1394 FireWire, Hi-Speed USB Connectivity
- MacOS X 10.4.7 or later, Windows Vista / XP
- Mains AC Power
- Backup software included

320GB (MXT4025) \$123
1TB (MXT4100) \$299



\$166

SAVE \$3 off RRP

WebCode: MXT4105

Maxtor Personal Storage Basics 320GB

stantly expand your storage.

ay add-on storage for home or office. Instantly expand your storage to digital photos, music, and data files. It's simple to install--just plug external drive into an available USB 2.0/1.1 port on your PC.

easy add-on storage for home or office

perfect for digital photos, music, and data files
compact design includes stand for vertical orientation

easy installation

USB 2.0 and 1.1 compatibility
Up to 320GB capacities

320GB (MXT3005) \$86

640GB (MXT3006) \$154



SAVE \$14 off RRP
WebCode: MXT3007

\$185

Seagate 160GB FreeAgent Go

Now any PC can temporarily become your PC

Whether using a computer at work, school, a business center, an Internet cafe or library, have your desktop environment and latest files with you. Along with up to 250 glorious gigabytes, FreeAgent Go software lets you carry lots of great programs and all your browser favorites and passwords without having to haul around your computer.

**FREE
Carry
Bag**



\$119

WebCode: CCG8010

WD My Passport Essential 20GB Portable Drive (Red)

ake your data with you

arry thousands of songs, videos or photos on WD's My Passport Essential Portable. Comes with encryption software.

**320GB Blue
DD0151) \$179**

**320GB Black
DD0148) \$179**



SAVE \$20 off RRP
WebCode: WDD0154

\$179

WD Elements 1TB USB Desktop Drive

Plain, simple, reliable add-on storage

WD Elements external hard drive is preformatted for immediate use. Simply plug it in to a USB port and you've got instant storage for your PC or Macintosh. The compact metal case provides extra data protection.

320GB (WDD0164) \$96

640GB (WDD0165) \$146



WebCode: WDD0166

\$199



1300 658 600



citysoftware.com.au

Tower 7 Port USB 2.0 Hub

Vertical stand included

Running out of USB Ports? Plug this USB Hub into your PC or notebook to increase your capacity.

- Supports both bus and self-powered
- Over-current detection and protection for each down-stream port
- Support O/S: Windows 98SE/ME/2000/XP Vista, MAC OS 8.6 & above



SAVE \$39 off RRP
WebCode: SIG0007

\$19.95

Verbatim Storage Media

CD-RW

CD-RW 2x-4x 5Pk Slim Case	VBM3133	\$5
CD-RW 4x 25 Spindle	VBM5169	\$24

DVD-R/+R (16x)

DVD-R 10 Spindle	VBM9510	\$6
DVD-R 25 Spindle	VBM0580	\$16

DVD-R 50 Spindle

DVD-R 50 Spindle Inkjet Print	VBM5101	\$35
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DVD-R 100 Spindle

DVD-R 100 Spindle Inkjet Print	VBM1973	\$35
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DVD-R 100 Spindle

DVD-R 100 Spindle	VBM6049	\$64
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DVD-R 100 Spindle

DVD-R 100 Spindle	VBM5153	\$56
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DVD-R 100 Spindle

DVD-R 100 Spindle	VBM5032	\$8
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DVD-R 50 Spindle Inkjet Print

DVD-R 50 Spindle Inkjet Print	VBM1974	\$32
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DVD-R 100 Spindle

DVD-R 100 Spindle	VBM6050	\$54
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DVD-R 100 Spindle Inkjet Print

DVD-R 100 Spindle Inkjet Print	VBM1995	\$64
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DVD-RW/+R (4x)

DVD-RW 10 Spindle	VBM6053	\$16
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DVD-RW 10 Spindle

DVD-RW 10 Spindle	VBM6044	\$18
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DVD-R/+R Dual Layer (2.4x)

DVD+R DL 8.5Gb 1Pk J/Case	VBM4912	\$5
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DVD+R DL 8.5Gb 3Pk J/Case

DVD+R DL 8.5Gb 3Pk J/Case	VBM5014	\$14
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DVD+R DL 8.5Gb 20 Spindle

DVD+R DL 8.5Gb 20 Spindle	VBM4981	\$60
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Blu-ray

BD-R 2x 25GB 5Pk J/Case	VBM4361	\$142
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BD-R 2x 25GB 10Pk J/Case

BD-R 2x 25GB 10Pk J/Case	VBM6068	\$224
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Tango USB Flash Drive 8GB

Neat & tidy, ready for business

Bold and sturdy design, this USB flash drive is ideal for anyone in need of small portable storage solution.

- Designed to utilise the high bandwidth of USB 2.0 interface
- No Driver Required, except on Windows 98SE
- Bootable

4GB (SIG0001) \$23



Top Seller

SAVE \$44 off RRP
WebCode: SIG0006

\$35

SanDisk Cruzer Micro U3 8GB

The market leading flash drive

The Cruzer Micro design is a small, smart and secure USB Flash Drive.

- Small, compact light weight design
- New retractable USB slider eliminates the need for caps
- U3 smart enables you to take your portable applications on the go

2GB (SAN0061) \$13
4GB (SAN0062) \$22
16GB (SAN0064) \$74



WebCode: SAN0103

\$35

Belkin F3U150 - USB 2.0 File Transfer Cable

Quick & easy transfers

The Belkin USB 2.0 File Transfer Cable provides the perfect solution that allows you to copy files from PC to PC without the need to install drivers when used with Windows ME, 2000 or XP.



HOT Price

WebCode: BEL1150

\$39.95

SanDisk Extreme Ducati USB 4GB

Passion for Performance

One look at the SanDisk Extreme Ducati Edition USB Flash Drive, and you know something's different.

- Distinctive design inspired by Ducati motorcycles.
- Fast 20MB/sec sequential read/write speed.
- The fastest consumer USB Flash Drive by SanDisk



WebCode: SAN0104

\$65

WebCode: SAN0127

\$53

SanDisk Cruzer Titanium USB Flash Drive - 8GB

Extremely rugged & smart

Cruzer Titanium is an extremely rugged and smart USB flash drive. It is built with Liquidmetal casing that is crush-resistant to over 2,000 lbs. Cruzer Titanium also includes U3 smart technology. Co-Invented by SanDisk, U3 technology gives you the ability to carry your files AND your software on a secure USB drive.



4GB (SAN0086) \$35

NETGEAR ReadyNAS

A New Class of Network Attached Storage

NETGEAR ReadyNAS is the perfect storage solution whether it be for your home, small business or large workforce. These storage devices are packed with robust high-end server features including Gigabit Ethernet, hardware RAID, system monitoring capabilities and built-in backup.

With an easy web browser interface and setup wizard, ReadyNAS can be configured with minimal effort - saving you valuable time.



NETGEAR

NETGEAR ReadyNAS NV+ 4-Bay Gigabit Desktop Network Storage (No HDD)

ReadyNAS NV+ was designed specifically for home offices, small businesses and workgroups. Never before has there been available a cost-conscious Network Attached Storage (NAS) appliance packed with robust high-end server features, including Gigabit Ethernet, hardware RAID, system monitoring capabilities and built-in backup. ReadyNAS couples out-of-the-box deployment and easy management with robust file serving and data redundancy.

Easy Deployment and Management

RAID

X-RAID Technology

Backup

File Serving and Media Streaming

Advanced System Design



SAVE \$316 off RRP

\$1383

WebCode: NTG8011
2x500GB HDD Version (NTG7998) \$1455

4x500GB HDD Version (NTG7999) \$2133

2x750GB HDD Version (NTG8031) \$2163

NETGEAR ReadyNAS Duo 1TB

The ReadyNAS Duo is perfect for homes with more than one computer. Unlike a USB drive, ReadyNAS connects to the network and is simultaneously accessible via all connected Windows or Macintosh computers.

Extra storage that can be shared with all your computers

Access stored content anywhere via the Internet

Vacant drive bay for adding an additional hard drive to duplicate your data

Supports most network music, picture and video players

Embedded BitTorrent client for direct downloading from the Internet – No PC Required

1GB (NTG8133) \$570

2GB (NTG8134) \$713

SAVE \$203 off RRP

\$956

WebCode: NTG8135



LINKSYS® by Cisco

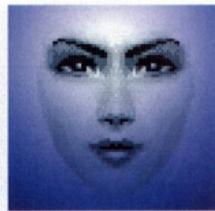
Linksys EasyLink Advisor (LELA)

New to setting up a wireless network? LELA is a free software included with the New Design Linksys Routers.

Easy to install and effortless to use - Wireless-N with LELA lets you stay connected wirelessly, giving you the freedom to do whatever you need to do.

- Get up and running in minutes
- Optimise network performance
- Keep an eye on your network Cut the Cord.

Go wireless with Linksys !



LELA
LINKSYS EASYLINK ADVISOR

**YOUR PERSONAL
TECHNOLOGY EXPERT**

Linksys WMP300N Wireless-N PCI Adapter

SAVE \$63 off RRP
WebCode: LNK5545

\$86

Linksys WPC300N Wireless-N Notebook Adapter

SAVE \$63 off RRP
WebCode: LNK5546

\$86

Linksys WUSB600N Dual-Band Wireless-N USB Network Adapter

SAVE \$37 off RRP
WebCode: LNK6290

\$112

Linksys WRT54G2 Wireless G Broadband Router

4 Port Wireless Router

With the Linksys Wireless-G Broadband Router at the center of your home or office network, you can share a high-speed Internet connection, files, printers, and multi-player games with flexibility, speed, security and simplicity.



SAVE \$20 off RRP

WebCode: LNK6287

\$69

Linksys WRT160N Ultra RangePlus Wireless-N Router

Excellent range, Excellent price

Internet-sharing Router and 4-port Switch, with a built in speed and range enhanced Wireless Access Point

- MIMO technology uses multiple radios to create a robust signal that travels farther and reduces dead spots



SAVE \$38 off RRP
WebCode: LNK6284

\$131

Linksys WAG160N Wireless N ADSL2+ Gateway

All-in-one Internet solution

- High-speed ADSL2+ Modem gives you a fast "Always On" connection to the Internet
- Connect your PCs via the built-in Router and 4-port Switch to jump start your Ethernet network and share the Internet throughout the building
- Built-in Wireless-N (draft 802.11n) Access Point also lets you connect without running wires



SAVE \$44 off RRP
WebCode: LNK6285

\$155

Astaro Security Gateway

Simple to implement & stay secure

Astaro Security Gateway integrates complete Network, Web and Mail Security through an intuitive browser-based user interface.

The Astaro Security Gateway appliance is the most easy-to-use and cost-effective "all-in-one" solution available, working to effectively shield businesses from internet based threats everyday. With offerings for SMB and corporate business, each solution offers you comprehensive perimeter security for:

- Network Security - Firewall, VPN and Intrusion Prevention
- Web Security - URL Filtering, Malware Detection, Bandwidth Management and IM/P2P Control
- Mail Security - Anti-spam, Anti-virus, Anti-phishing and Email Encryption Deployment as hardware, software or virtual appliance

10 User Appliance: from \$995

50 User Appliance: from \$1,700





ProCurve
Networking by HP

Imagine a World Without Choice



ProCurve
Lifetime
Warranty



Procurve 2824 / 24-port 10/100/1000

Our Price	\$3,088.00	Save \$446.00
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WebCode..... HPE4903

ProCurve Switch 2510 Series

The ProCurve Switch 2510 series consists of managed, Layer 2, 10/100 switches with Gigabit uplinks. The 2510-24 has 24 10/100 ports and 2 Gigabit dual-personality ports for 10/100/1000 or mini-GBIC connectivity. The 2510-48 has 48 10/100 ports and 4 Gigabit ports (2 10/100/1000 ports and 2 open mini-GBIC slots), all of which can operate simultaneously. The 2510-24 is fanless, ensuring quiet operation and making it ideal for deployment in open spaces.

Procurve 2510-48 / 48 port 10/100/1000 (HPE4957) \$796

ProCurve Switch 2800 Series

The ProCurve Switch 2800 series consists of two switches: the 24-port ProCurve Switch 2824 with 20 10/100/1000 ports, and the 48-port ProCurve Switch 2848 with 44 10/100/1000 ports. In addition, each switch has 4 dual-personality ports for RJ-45 10/100/1000 or mini-GBIC fiber 1000 connectivity. Ideal for medium to large networks, the ProCurve 2824 and ProCurve 2848 cost-effectively offer the maximum bandwidth performance with up to 10 times the speed of 100 Mbit switches.

Procurve 2848 / 48 port 10/100/1000 (HPE4904) \$6053.00

ProCurve
Lifetime
Warranty



Procurve 2510-24 / 24-port 10/100/1000

Our Price	\$522.00	Save \$75.00
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WebCode..... HPE4956

For as long as you own the product, with next-business-day advance replacement (available in most countries). The following hardware products and their related family modules have a one-year warranty with extensions available: The ProCurve Routing Switch 9300 Series, ProCurve Switch 8000iSeries, ProCurve Access Control Server 7450v1 and the ProCurve Network Access Controller 800. Stand-alone software may have a different warranty duration. For details, refer to the ProCurve Software License Warranty and Support booklet at: <http://www.hp.com/md/support/warranty/index.htm>

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CSW-IT



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Windows Vista™

D-Lifestyle

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D-Link RangeBooster N USB Adapter DWA-140

\$97 | SAVE \$22 off RRP
WebCode: DLAD090

D-Link RangeBooster N 650 Desktop Adapter DWA-547

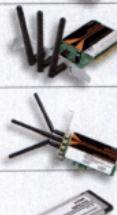
\$97 | SAVE \$22 off RRP
WebCode: DLAKB05

D-Link Xtreme N PCI Express Desktop Adapter DWA-556

\$99 | SAVE \$60 off RRP
WebCode: DLAKC09

D-Link Xtreme N Notebook ExpressCard DWA-643

\$99 | SAVE \$60 off RRP
WebCode: DLAKD09



D-Link DSL-2740B RangeBooster N ADSL2+ Modem Router

The DSL-2740B RangeBooster N ADSL2+/2+ Modem Router is a versatile, high-performance remote router for the home and small office. With integrated ADSL2+ supporting up to 24Mbps download speeds, firewall protection, Quality of Service (QoS), 802.11n wireless, LAN (draft 1.0) and 4 Ethernet switch ports.



\$244 | SAVE \$55 off RRP
WebCode: DLK0065

D-Link DIR-320 Wireless G Router with USB Print Server

Connect the Wireless G Router to a broadband modem to wirelessly share your high-speed Internet connection and enjoy surfing the web, checking e-mail, and chatting with family and friends online.

- USB printer sharing
- 802.11g wireless connection

DIR-320 - Wireless G Router (DLK3006) **\$57**



NEW

\$83 | SAVE \$16 off RRP
WebCode: DLK0320

D-Link DPR-1260 Wireless 108G Multifunction Print Server

The D-Link RangeBooster N Multifunction Print Server is D-Link's most versatile and easiest to use Print Server yet.

- Share Up to 4 USB Printers, Multifunction Printers
- Ethernet & 802.11g Wireless
- Supports Scanning from Multifunction Printers
- Tested without 100 Multifunc



\$163 | SAVE \$36 off RRP
WebCode: DLK5211

D-Link DCS-920 Wireless G IP Security Camera

The D-Link Wireless G Internet Camera connects to an Ethernet or wireless network to enable remote high-quality video recording. 802.11g wireless technology allows you to place the DCS-920 in places that were previously inaccessible such as ceiling and walls.

- Remotely Monitor Your Home or Office
- Motion JPEG

DCS-910 - Ethernet Camera (DLK5910) **\$124**



NEW

\$150 | SAVE \$39 off RRP
WebCode: DLK5920

D-Link DIR-451 3G Mobile Router

The 3G Mobile Router enables you to quickly create a secure wireless 802.11g network and provide access to the Internet using a cellular signal by inserting a PCMCIA, Express or USB 3G Card.

Operators Supported:

- Telstra
- Optus
- Hutchinson 3G
- Vodafone



NEW

[*see www.dlink.com.au for compatibility](http://www.dlink.com.au)
\$199 | SAVE \$40 off RRP
WebCode: DLK4510

Wireless G is great if you use your connection to surf the web and check your email, and don't want to spend more than you need to.

D-Link DSM-330 DivX HD Media Player

Add the DSM-330 to your wired or wireless home network, and access media on your TV/Entertainment system from all your PCs, hard drives and online. Get music, photos and video using 802.11b/g or Ethernet connections and enjoy the high-quality media experience in your home theatre.

We rate this product:

- HDMI Connectivity
- Wireless 802.11b/g
- DivX Connected



NEW

\$329 | SAVE \$70 off RRP
WebCode: DLK3300

D-Link DNS-343 4 Bay Network Storage Enclosure

The D-Link DNS-343 4-Bay Network Storage Enclosure, when used with internal SATA drives, enables you to share files with everyone on the network. Back up all files inc. music, photos, and movies with RAID 0/5 mirroring technology.

- Add up to 4 SATA drives
- Built-in FTP server



1 Bay DNS-313
(DLK0313) **\$177**

2 Bay DNS-323
(DLK0666) **\$277**

NEW

\$654 | SAVE \$145 off RRP
WebCode: DLK3430

D-Link DGS-1005D Green Ethernet Unmanaged 5-Port Gigabit Switch

The D-Link Gigabit Express DGS-1005D is an energy efficient 10/100/1000Mbps Gigabit Switch that delivers power, performance and reliability in one cost-effective, space-saving design. Increase the speed of your network server and backbone connections, make Gigabit to the desktop a reality.

D-Link DGS-1008D - 8-Port
(DLK0667) **\$196**



green ethernet

\$64 | SAVE \$15 off RRP
WebCode: DLK0665

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Mustek ScanExpress A3 USB 600 Pro Scanner

Flatbed Scanner

A flatbed solution for anyone setting up a home office, the Mustek ScanExpress A3 comes complete with high-resolution, color-accurate scanning abilities. With its 36-bit color capturing abilities, the ScanExpress A3 can capture over 68.7 billion colors in a single-pass. 600 x 1200 dpi resolution.

Quick and easy USB interface

Multiple functions include Scan, Copy, E-Mail, Fax and OCR
Available Software Packages included

Unique Optional transparency adapter available

8-Bit Colour

IS technology

Comprehensive OCR and image editing software

USB 2.0 connection

Supports Microsoft Windows 2000/XP/Vista and Mac OS X

Mustek BearPaw Plus A4 Scanner (MUS0100) \$98

SAVE \$100 off RRP

\$449

WebCode: MUS0101

Unbeatable
Value



Canon LiDE 25 A4 Scanner

Portable, quality scanning made easy

200 x 2400 dpi optical resolution with
8-bit colour depth for sharp, accurate scans.

Three one-touch buttons Scan/Copy/E-mail
for easy operation.

Compact and stylish design.

SB powered.
Advanced Z-Lid accommodates scanning of
bulky items such as books with ease.



SAVE \$11 off RRP

\$108

WebCode: CAN0403

Epson Perfection V200

Photo Scanner

Contains a Matrix CCD sensor

Epson Perfection V200 Photo is a versatile scanner suitable for a wide range of applications including scanning photos, documents, thick books and 35mm strip film and slide scanning. Using Epson's superior Matrix CCD Micro Sensor, 4800 x 9600 pixels, 4800 x 9600 optical dpi and fast scanning speeds, it scans as little as seconds.



SAVE \$19 off RRP

\$230

WebCode: EPS0200

Canon CanoScan 8800F Scanner

The easy to use, high speed scanner with versatile features.

Sleek and fast, this powerful scanner will impress you the very first time you push power. With high-luminance white LED lamps - it's ready to scan immediately, with no warm-up time needed. You'll quickly produce spectacular results, with max. color dpi resolution of 4800 x 9600. Seven easy buttons automate the scanning process, so it's simple to scan, copy and create e-mails and multi-page PDFs. Built-in FARE 3.0 retouching technology helps to enhance your final images. And to save time, you can batch-scan up to twelve 35mm frames or up to four slides - either positives or negatives.



SAVE \$32 off RRP

WebCode: CAN5015

\$317

Epson Perfection V700 Photo A4 Scanner

Scan paper, slides & film

Get professional quality results from virtually any photographic original with the Epson Perfection V700 Photo scanner. With groundbreaking 6400 dpi resolution, this powerful scanner consistently delivers precision color and detail, whether scanning slides, negatives or medium format film.

- Resolution: Dual Lens Systems- 6400x9600dpi
film, 4800x9600dpi reflective scanning
Monochrome(Bi-Level)/Draft mode A4 300dpi
- 35mm POSITIVE FILM - 2400dpi 47 sec
- USB 2.0 / IEEE1394 (FireWire)



SAVE \$12 off RRP

WebCode: EPS0700

\$837



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Lexmark X2650 3-In-1 Multifunction

Great speed and performance

Print, Scan, Copy at outstanding quality and bundled with great software all at a stunning price. Lexmark Imaging Studio Software makes it easy to crop, rotate and resize photos, plus colour fix and red eye reduction. Optical Character Recognition (OCR) software allows you to easily scan hard copy text documents into a soft copy format

- 22ppm Mono
- 16ppm Colour
- 4800x1200 DPI Printing
- 600x1200dpi Scanning
- USB
- On-site warranty



\$20*
Cashback!

SAVE \$39 off RRP
WebCode: LEX2657

You Pay \$49.95
\$29.95
After \$20 Cashback

*See citysoftware.com.au/promotions

Lexmark X5070 4-in-1 Multifunction

Autofeeding inkjet fax

Ideal for offices, the X5070 offers a fax and a photo quality printer without sacrificing the fax handset and auto feeding that most company's need. With other features such as PictBridge and borderless 4x6 Photos it is the ideal solution for any business.

- 24ppm Mono
- 17ppm Colour
- 4800x1200 DPI Printing
- 600x1200dpi Scanning
- USB
- On-site warranty



\$20*
Cashback!

SAVE \$59 off RRP
WebCode: LEX5070

You Pay \$110
\$90
After \$20 Cashback

*See citysoftware.com.au/promotions

BONUS

Valued at \$140



Logitech Harmony Remote & Colour Ink cartridge

Lexmark X4850 / Lexmark X6570 / Lexmark X9575

Lexmark X9575 4-In-1 Multifunction

Share your Multifunction via wireless

This Wireless All-in-One with Fax offers the convenience of wireless technology combined with two-sided printing

- 33ppm Mono
- 28ppm Colour
- 4800x1200 DPI Printing
- 1200x4800DPI Scanning
- USB, 802.11 b/g, Ethernet



***BONUS**
Remote & Colour Ink Cartridge



SAVE \$113 off RRP
WebCode: LEX9575

\$236

*See citysoftware.com.au/promotions

Lexmark X4850 3-In-1 Multifunction

Provide maximum performance for your home

The Lexmark X4850 Wireless All-in-One offers the convenience of wireless technology combined all the features you can expect from a quality inkjet, 2.4" screen, PictBridge this multifunction has it all. Produce high resolution scan documents and easily copy with 1-touch of a button.

- 30ppm Mono
- 27ppm Colour
- 4800x1200 DPI Printing
- 600x1200dpi Scanning
- USB, 802.11b/g Wireless
- On-site warranty

***BONUS Remote & Colour Ink Cartridge**

SAVE \$64 off RRP
WebCode: LEX4850

\$135

*See citysoftware.com.au/promotions

Lexmark X6570 4-in-1

Wireless Home Office Productivity

Automatic duplexing, a 25-sheet automatic document feeder, and integrated 802.11b/g networking. These features can make a big difference for the SOHO/small business crowd.

- 28ppm Mono
- 24ppm Colour
- 4800x2400 DPI Printing
- 600x1200 DPI Scanning
- USB, 802.11 b/g
- On-site warranty

***BONUS Remote & Colour Ink Cartridge**

SAVE \$104 off RRP
WebCode: LEX6570

\$175

*See citysoftware.com.au/promotions



KONICA MINOLTA



Inclusive to
Software

SAVE \$362 off RRP

WebCode: QMS2551

\$636

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Konica Minolta magicolor 4650EN

A4 Network Colour Laser

- 24ppm Mono and Colour
- PhotoART 9600 x 600 dpi
- PostScript 3, PCL 6 & more
- Parallel, USB 2.0, Gigabit Ethernet
- 250 sheet paper tray & 100 sheet multi-purpose tray
- 3,000 page starter toners included

Year On-Site Warranty (Next Day Service)



FREE
set of 8,000
page toners

SAVE \$205 off RRP

WebCode: QMS4650

\$1194



Konica Minolta magicolor 2550DN

A4 Colour Laser

- 20ppm Mono
- 5ppm Colour
- PhotoART 9600 x 600 dpi
- PostScript 3, PCL5, PCL6
- Parallel, USB 2.0, Ethernet
- 4,500 Page Black Toner,
- 4,500 Page CMY Toner

**DUPLEX
READY**

1 Year On-Site Warranty
(Next Day Service)



Konica Minolta magicolor 2590MF

A4 Network Colour Laser MFP

- 20ppm Printing and Copying
- 2400 x 600 dpi
- HD toner quality
- USB 2.0, Gigabit Ethernet
- 200 Sheet Paper Tray
- 4,500 black toner and 1,500 colour toners included

1 Year On-Site Warranty (Next Day Service)



FREE
set of extra
toners
(4,500 K &
1,500 CMY)

SAVE \$205 off RRP
WebCode: QMS2590

\$1194



Konica Minolta PagePro™ 9100

A3 Workgroup Mono Laser

- 35ppm A4 and 19ppm A3
- 1200 x 1200 dpi
- PostScript 3, PCL 6 & more
- Parallel, USB 2.0, Gigabit Ethernet
- 500 Sheet paper tray and 200 sheet multi-purpose tray
- 6,000 Page Black Toner included

1 Year On-Site Warranty (Next Day Service)



SAVE \$301 off RRP
WebCode: QMS6158

\$698





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Minimise your environmental impact with HP LaserJet Printers

HP has launched another initiative to help you minimise your environmental footprint. A customer who buys any HP LaserJet before 30 October 08 can claim a bonus offset carbon credit. This is representative of carbon emissions produced over the lifetime* of the HP LaserJet printer being offset by HP through the purchase of carbon credits. HP is partnering with Climate Positive to source carbon credits, including Australian renewable energy projects, that helps to reduce greenhouse gas emissions. For more information visit www.citysoftware.com.au/promotions

*CO2 calculation is based on avg. energy consumption of printer (supplies & media excluded) as defined by the ENERGY STAR Program Requirements for Imaging Equipment, Version 1.0 Typical Electricity Consumption (TEC) over 5yr lifetime.



HP Color LaserJet CP4005dn Laser Printer

Combine robust performance, power packed durability & superb color quality for the printing needs of all sizes of workteams

- 30ppm Mono
- 25ppm Colour
- 600x600DPI
- PCL 5C/6, PostScript 3, PDF 1.4
- USB, Ethernet

Black Toner (HPL0400) \$206

Cyan Toner (HPL0401) \$306

Magenta Toner (HPL0403) \$306

Yellow Toner (HPL0402) \$306

*Trade in
your old
printer for up to
\$150 cashback



* See citysoftware.com.au/promotions

SAVE \$456 off RRP

WebCode: HPL0504

\$2294

HP LaserJet P2015 Mono Laser

Produce professional-quality documents at true 1200 dpi

- 26ppm Mono
- 1200x1200 DPI
- PCL 5E, PostScript 3, PCL 6
- USB

Black Toner (HPL7553) \$103

UPGRADE
for only
\$882



*Trade in
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printer for up to
\$45 cashback

* See citysoftware.com.au/promotions

SAVE \$51 off RRP

WebCode: HPL0366

\$538

HP LaserJet P3005n Mono Laser

High quality printer that's fast

- 33ppm Mono
- 1200x1200DPI
- PCL 5E, PostScript 3, PCL 6
- USB, Ethernet

Black Toner (HPL7551) \$165

*Trade in
your old
printer for up to
\$100 cashback



* See citysoftware.com.au/promotions

SAVE \$129 off RRP

WebCode: HPL7814

\$1420

HP LaserJet M1522nf Mono Multifunction

Print, Scan, Copy, Fax

- 23ppm Mono
- 600x600DPI Printing
- 1200x1200DPI Scanning
- PCL 5e, PCL 6, PostScript 3
- USB, Ethernet

Black Toner (HPL0436) \$97

UPGRADE
for only
\$459



SAVE \$121 off RRP

WebCode: HPL0534

\$647

HP LaserJet M2727nfs Mono Multifunction

Don't waste time waiting for your documents

- 26ppm Mono
- 1200x1200DPI Printing
- 1200x1200DPI Scanning
- PCL 5e/6, PostScript 3
- USB, Ethernet

Black Toner (HPL7553) \$103

*Trade in
your old
printer for up to
\$75 cashback



SAVE \$93 off RRP

WebCode: HPL0533

\$1106

300 658 600

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Budget colour laser

Fuji Xerox DocuPrint C1110 A4 Colour Laser

DocuPrint C1110 is a small but powerful A4 Laser Printer that is available in networked and non-networked configurations. With its easy to functionality and innovative design it has a small footprint with a big shade that keeps the costs down. This little gem will suit the SoHo or SMB's.

6ppm Mono

2ppm Colour

Up to 9600 x 600 DPI

USB, Ethernet

60,000 Duty Cycle

\$200*
Cashback
Ends Sept 30

You Pay \$479
\$279
After \$200 Cashback

SAVE \$230 off RRP
WebCode: FXP1111



Copier / Printer / Scanner

Fuji Xerox WorkCentre 3119 A4 Mono Multifunction Laser

18ppm Mono

600 x 600 DPI

USB

10,000 Duty Cycle

Memory 32MB



SAVE \$46 off RRP
WebCode: FXP0235

\$229

For all your office needs

Fuji Xerox DocuPrint C2090FS Colour Multifunction Laser

Oppm Mono

Oppm Colour

600 x 600 DPI

USB, Ethernet

fax / Print

can / Copy



***\$200**
Cashback
Ends Sept 30

SAVE \$182 off RRP
WebCode: FXP2090

You Pay \$1098
\$899
After \$200 Cashback



Affordable colour laser

Fuji Xerox DocuPrint C2100 A4 Colour Laser

The DocuPrint C2100 redefines color network printing and is the ideal choice for workgroups that require a high quality printer at a low total cost of ownership.

- 25ppm Mono
- 17ppm Colour
- Up to 9600 x 600 DPI
- 60,000 Duty Cycle
- Parallel, USB, Ethernet

Black Toner 8k
(FXP2106) \$233

Black Toner 3k
(FXP2110) \$124

BONUS
Duplexer!



SAVE \$146 off RRP
WebCode: FXP2100

\$679

Robust business laser

Fuji Xerox Phaser 3428DN A4 Mono Laser

- 28ppm Mono
- Up to 1200 x 1200 DPI
- Parallel, USB, Ethernet
- 65,000 Duty Cycle
- Memory 32MB



SAVE \$120 off RRP
WebCode: FXP3429

\$628

Huge duty cycle

Fuji Xerox DocuPrint 340A A4 Mono Laser

- 34ppm Mono
- Up to 1200 x 1200 DPI
- 150,000 Duty Cycle
- Parallel, Serial, USB, Ethernet



SAVE \$169 off RRP
WebCode: FXP0346

\$1198

Perfect for business professionals

Fuji Xerox DocuPrint C3210DX A4 Colour Laser

- 30ppm Mono
- 25ppm Colour
- Up to 1200 x 1200 DPI
- Parallel, USB, Ethernet
- 80,000 Duty Cycle



SAVE \$211 off RRP
WebCode: FXP3211

\$1107

Solid ink technology

Fuji Xerox Phaser 8560DN A4 Colour Laser

- 30ppm Colour
- 600 x 600 DPI
- 85,000 Duty Cycle
- Parallel, Serial, USB, Ethernet



HUGE
Monthly
Duty Cycle

SAVE \$440 off RRP
WebCode: FXP0562

\$1790



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INKS CARTRIDGES



Description	Webcode	Price
HP 78 Tri-Colour	HPD6578	\$45
HP 23 Tri-Colour	HPI1826	\$50
HP 45 Black	HPO095	\$41
HP 15 Black	HPD6645	\$38
HP 28 Tri-Colour	HPI8782	\$29
HP 27 Black	HPD8772	\$25
HP 56 Black	HPD6656	\$27
HP 57 Tri-Colour	HPI6657	\$45

TONER CARTRIDGES



Description	Webcode	Price
C3906A Black Toner	HP741	\$87
C4092A Black Toner	HPL4092	\$76
C4096A Black Toner	HPL4096	\$128
C4127X Black Toner	HPL4129	\$163
C4129X Black Toner	HPL4131	\$209
C7115A Black Toner	HPL7115	\$79
C7115X Black Toner	HPL7117	\$98
C8061X Black Toner	HPL8063	\$163
C9720A Black Toner	HPL9720	\$197
C9721A Cyan Toner	HPL9721	\$267
C9723A Magenta Toner	HPL9723	\$267
Q1338A Black Toner	HPL1338	\$195
Q2610A Black Toner	HPL2610	\$153
Q2612A Black Toner	HPL2612	\$89
Q2613A Black Toner	HPL2613	\$91
Q2613X Black Toner	HPL2614	\$114
Q2670A Black Toner	HPL2670	\$168
Q2683A Magenta Toner	HPL2683	\$217
Q3960A Black Toner	HPL3960	\$106
Q3961A Cyan Toner	HPL3978	\$127
Q3962A Yellow Toner	HPL3979	\$127
Q3963A Magenta Toner	HPL3981	\$127
Q3972A Yellow Toner	HPL3976	\$94
Q3973A Magenta Toner	HPL3977	\$94
Q5942A Black Toner	HPL5942	\$190
Q5942X Black Toner	HPL5943	\$287
Q5945A Black Toner	HPL5945	\$259
Q5949A Black Toner	HPL5949	\$91
Q5949X Black Toner	HPL5994	\$167
Q5950A Black Toner	HPL5950	\$226
Q5951A Cyan Toner	HPL5951	\$321
Q5952A Yellow Toner	HPL5952	\$349
Q5953A Magenta Toner	HPL5953	\$321
Q6000A Black Toner	HPL6060	\$97
Q6001A Cyan Toner	HPL6061	\$106
Q6002A Yellow Toner	HPL6062	\$106
Q6003A Magenta Toner	HPL6063	\$106
Q6470A Black Toner	HPL6470	\$168
Q6511A Black Toner	HPL6511	\$158

WHY BUY HP ORIGINAL SUPPLIES

SAVE MONEY AND HELP PROTECT THE ENVIRONMENT

If you are eager to save money and the environment, you can avoid excess costs, spoilage and waste with high quality, reliable HP original supplies.

Opportunity for rewards and benefits

- Look for HP specially marked pink packaging which allows you to participate in our rewards program and provides opportunities for prizes and bonuses too!

Quality means less waste

- 70% of the environmental impact is during the use phase of printing so the greatest benefit comes from reliable printing
- Studies show 1 in 4 remanufactured or refilled print cartridges are dead on arrival or fail prematurely
- Reliable hp original supplies cause less spoilage of paper and waste cartridges

Environmental from start to finish

- HP's Design for environment program was established in 1992, which means that over 15 years of research, development and environmentally-conscious design practices have gone into HP original printing supplies
- HP's environmental programs cover the full lifecycle of printing supplies, not just the ultimate disposal

WHAT DO YOU HAVE TO SAY?

Purchase

5 specially marked HP Toner Cartridges
(Pink Packaging)



Receive

A Tom Tom One V3 Navigator Valued at **\$299 OR \$150** cashback



Purchase

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(Pink Packaging)



Receive

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Extended
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Offer!

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VALUE to your
HP purchase!

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all your own
with this
BONUS offer!

Look for the pink banner on the
packaging as pictured.

Printer Consumables

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INKS CARTRIDGES

EPSON											
Code	Vendor	Colour	Price	Webcode	Vendor	Colour	Price	Webcode	Vendor	Colour	Price
EBK	BCI-3EBK	Black	\$18	LEX7001	T2A1975	Black	\$51	EPA0821	T0544	Yellow	\$20
EC	BCI-3EC	Cyan	\$15	EPA0060	T028	Black	\$46	EPA0822	T0547	Red	\$20
EM	BCI-3EM	Magenta	\$15	EPA0061	T029	Colour	\$40	EPA0823	T0549	Blue	\$20
EY	BCI-3EY	Yellow	\$15	EPA0890	T0491	Black	\$19	EPA1040	T038	Black	\$18
D048	BCI-6BK	Black	\$21	EPA0511	T0492	Cyan	\$19	EPA1270	T009	Colour	\$40
D049	BCI-6PC	Ph.Cyan	\$21	EPA0512	T0493	Magenta	\$19	EPA1271	T007	Black	\$30
D050	BCI-6C	Cyan	\$21	EPA0513	T0494	Yellow	\$19	EPA1305	T0501	Black	\$29
D051	BCI-6M	Magenta	\$21	EPA0514	T0495	Ph.Cyan	\$19	EPA2100	T0341	Ph.Black	\$19
D052	BCI-6PM	Ph.Magenta	\$21	EPA0515	T0496	Ph.Magenta	\$19	EPA2103	T0342	Cyan	\$19
D053	BCI-6Y	Yellow	\$21	EPA0631	T0631	Black	\$15	EPA2104	T0343	Magenta	\$19
D0283	BCI-6R	Red	\$19	EPA0632	T0632	Cyan	\$14	EPA2106	T0345	Ph.Cyan	\$19
D0284	BCI-6G	Green	\$19	EPA0633	T0633	Magenta	\$14	EPA2107	T0346	Ph.Magenta	\$19
D0429	CLI 8BK	Black	\$23	EPA0634	T0634	Yellow	\$14	EPA2403	T0594	Yellow	\$21
D0430	CLI 8C	Cyan	\$23	EPA0700	T5591	Black	\$19	EPA2404	T0595	Ph.Cyan	\$21
D0431	CLI 8M	Magenta	\$23	EPA0702	T5592	Cyan	\$19	EPA2405	T0596	Ph.Magenta	\$21
D0432	CLI 8PC	Ph.Cyan	\$23	EPA0703	T5593	Magenta	\$19	EPA7320	T0731	Black	\$15
D0433	CLI 8PM	Ph.Magenta	\$23	EPA0704	T5594	Yellow	\$19	EPA8121	T0812	Cyan	\$27
D0434	CLI 8Y	Yellow	\$23	EPA0705	T5595	Ph.Cyan	\$19	EPA8122	T0813	Magenta	\$27
D0437	PGI 5BK	Black	\$23	EPA0706	T5596	Ph.Magenta	\$19	EPA8123	T0814	Yellow	\$27
EPA0810				EPA0810	T026	Black	\$38	EPA8124	T0815	Ph.Cyan	\$27
EPA0811				EPA0811	T027	Colour	\$31	EPA8125	T0816	Ph.Magenta	\$27
EPA0816				EPA0816	T0548	Black	\$20	EPA8126	T0821	Black	\$19
EPA0817				EPA0817	T0541	Ph.Black	\$20	EPA8127	T0822	Cyan	\$19
EPA0818				EPA0818	T0542	Cyan	\$20	EPA8128	T0823	Magenta	\$19
EPA0819				EPA0819	T0543	Magenta	\$20	EPA8129	T0824	Yellow	\$19

TONER CARTRIDGES

Code	Vendor	Colour	Yield	Price	Webcode	Vendor	Colour	Yield	Price	Webcode	Vendor	Colour	Yield	Price
F0230	CT200658	Yellow	8,000	\$338	LEXF239	CT200658	Yellow	8,000	\$338	LEXF436	C5220KS	Black	4,000	\$132
I104	0190	Black	4,000	\$105	FXP2539	CT200657	Yellow	8,000	\$338	LEXF9216	18S0090	Black	3,200	\$89
I105	0187	Yellow	4,000	\$167	FXP2542	CT200655	Black	9,000	\$105	KONICA MINOLTA				
I106	0188	Magenta	4,000	\$167	FXP2547	CT200655	Cyan	8,000	\$338	QMS1301	1710566-003	Black	3,000	\$95
I107	0189	Cyan	4,000	\$167	FXP3063	CT200805	Black	6,500	\$85	QMS1302	1710567-003	Black	6,000	\$138
F0230	CT200805	Cyan	6,500	\$278	FXP3064	CT200806	Cyan	6,500	\$278	QMS2301	1710517-002	Yellow	1,500	\$100
F0230	CT200807	Magenta	6,500	\$278	FXP3065	CT200807	Magenta	6,500	\$278	QMS2302	1710517-003	Magenta	1,500	\$100
F0230	CT200808	Yellow	6,500	\$278	FXP3066	CT200808	Black	8,000	\$196	QMS2303	1710517-004	Cyan	1,500	\$100
F0230	CT350567	Black	8,000	\$196	FXP3296	CT350567	Black	8,000	\$229	QMS2304	1710517-005	Black	4,500	\$145
F0230	CT350568	Cyan	6,000	\$229	FXP3297	CT350568	Cyan	6,000	\$229	QMS2309	1710520-001	Drum	45,000	\$199
F0230	CT350569	Magenta	6,000	\$229	FXP3298	CT350569	Magenta	6,000	\$229	QMS2401	1710590-001	Yellow	1,500	\$94
F0230	CT350570	Yellow	6,000	\$229	FXP3299	CT350570	Yellow	6,000	\$229	QMS2402	1710590-002	Magenta	1,500	\$94
F0230	CT350571	Black	8,000	\$209	FXP3432	CTWAA0716	Black	8,000	\$209	QMS2403	1710590-003	Cyan	1,500	\$94
F0230	CTWAA0716	Black	8,000	\$209	KONICA MINOLTA					QMS2404	1710590-004	Black	4,500	\$138
F0230	CTWAA0717	Black	8,000	\$209	KONICA MINOLTA					QMS2405	1710590-005	Yellow	4,500	\$206
F0230	CTWAA0718	Black	8,000	\$209	KONICA MINOLTA					QMS2406	1710590-006	Magenta	4,500	\$206
F0230	CTWAA0719	Black	8,000	\$209	KONICA MINOLTA					QMS2407	1710590-007	Cyan	4,500	\$206
F0230	CTWAA0720	Black	8,000	\$209	KONICA MINOLTA					QMS2408	1710591-001	Drum	45,000	\$201
F0230	CTWAA0721	Black	8,000	\$209	KONICA MINOLTA					QMS5437	1710584-001	Waste	32,000	\$56
F0230	CTWAA0722	Black	8,000	\$209	KONICA MINOLTA					QMS9110	1710497-001	Black	15,000	\$259
F0230	CTWAA0723	Black	8,000	\$209	KONICA MINOLTA					SAMSUNG				
F0230	CTWAA0724	Black	8,000	\$209	KONICA MINOLTA					SAM1703	ML-1710D3	Black	2,500	\$108
F0230	CTWAA0725	Black	8,000	\$209	KONICA MINOLTA					SAM2554	ML-2550D5	Black	5,000	\$132
F0230	CTWAA0726	Black	8,000	\$209	KONICA MINOLTA					SAM4151	SCX-D4200A	Black	3,000	\$108
F0230	CTWAA0727	Black	8,000	\$209	KONICA MINOLTA					SAM4522	SCX-4521D3	Black	3,000	\$108

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Office 2008 for Mac Home and Student Edition provides the basics of Office 2008 for Mac to school users. This version includes three user licenses for use by consumers and students but does not include connectivity to Microsoft Exchange Server or support for automated workflows.

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3 User

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\$189

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Harris Technology \$199
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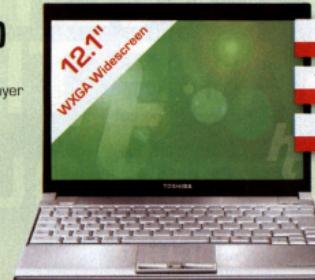
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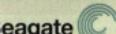
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Colour Laser
Multifunction

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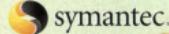


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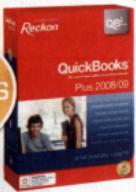
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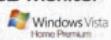
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\$969 | V7337 | RENT \$9.13/wk*

Tecra A9 T8100 + 2GB RAM, Bag & Mouse

- CPU: Intel® Core™ 2 Duo Mobile T8100 2.1GHz
- Memory: 1x1GB
- Hard Drive: 120GB
- Optical: DVD SuperMulti Dual Double Layer [DVDRW, DVDR DL/DVD-RAM]
- Graphics: Intel Graphics Media Accelerator 965GM with 256MB shared memory
- Wireless: integrated Intel 802.11 a/g/n



\$2140 | V9682 | RENT \$20.19/wk*

BONUS

2 Year Warranty from Toshiba via redemption

TOSHIBA

Leading Innovation >>



VAIO SR16GNB P8400

- CPU: Intel® Core™ 2 Duo Processor P8400 2.26GHz
- Memory: 1x2GB
- Hard Drive: 250GB HDD
- Optical: DVD±RW / ±R DL / RAM Drive
- Graphics: ATI Mobility Radeon™ HD 3470
- Connectivity: integrated wireless a/g/n + Bluetooth
- Other: integrated webcam



\$2199 | V9432 | RENT \$20.75/wk*

Also available:

\$2199 | V9433 | PINK | RENT \$20.75/wk*
\$2199 | V9434 | SILVER | RENT \$20.75/wk*



Aspire One N270

- CPU: Intel Atom Processor 1.6GHz
- Memory: 1GB
- Hard Drive: 120GB
- Graphics: Intel Graphics Media Accelerator
- Connectivity: integrated wireless a/b/g
- Other: 3x USB 2.0 + Integrated Webcam



\$546 | W0136

BEFORE CASHBACK YOU PAY \$645 | RENT \$6.08/wk*

Also available:
Sapphire White | W0137 | \$546

BEFORE CASHBACK YOU PAY \$645 | RENT \$6.08/wk*



\$99
CASHBACK

SL500 P8600

- CPU: Intel® Centrino™ 2 Duo Processor P8600 2.4GHz
- Memory: 1x2GB
- Hard Drive: 250 GB
- Optical: DVD±RW / ±R DL / DVD-RAM
- Graphics: NVIDIA GeForce 9300M 256MB Dedicated Video Memory
- Connectivity: integrated wireless a/g/n + Bluetooth
- Other: 2x USB 2.0 + Integrated Webcam



\$1849 | V8537 | RENT \$17.45/wk*

lenovo



TOSHIBA

Leading Innovation >>

SONY



\$2199 | V9432 | RENT \$20.75/wk*

Also available:

\$2199 | V9433 | PINK | RENT \$20.75/wk*
\$2199 | V9434 | SILVER | RENT \$20.75/wk*

Portégé R500 U7700

- CPU: Intel® Core™ 2 Duo Processor U7700 1.3GHz
- Memory: 1x1GB
- Hard Drive: 160GB
- Optical: DVD±RW / ±R DL / DVD-RAM
- Connectivity: integrated wireless a/g/n + Bluetooth
- 3 Year Warranty



Was \$3099
Reduced to:

\$2799 | V7302 | RENT \$25.75/wk*

● **BONUS** Toshiba TEKBRIGHT™ 20" Monitor* valued at \$399

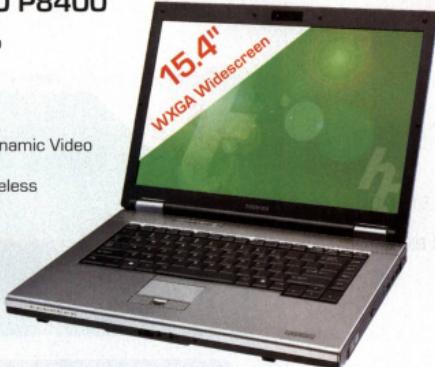


EXCLUSIVE BUNDLE
VALUED AT
\$3498

*For terms and conditions, including RentSmart, see page 20. *Available capacity of hard drive may be less due to preinstalled software.
1 Bonus Toshiba TEKBRIGHT™ 20" Monitor via redemption from Toshiba effective from 1st September – 30th November.

Satellite Pro S300 P8400

CPU: Intel® Centrino™ 2 Duo
Processor P8400 2.26GHz
Memory: 2x1GB
Hard Drive: 160GB
Optical: DVD±RW/±R DL
Graphics: Intel GMA 950 Dynamic Video
Memory Technology 3.0
Connectivity: integrated wireless a/g/n + Bluetooth
Other: 3x USB 2.0 + integrated webcam



harris technology

TOSHIBA

Leading Innovation >>>

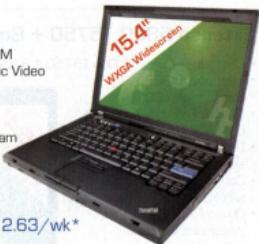


\$1599

V9638 | RENT \$15.09/wk*

thinkPad R61e T8100

CPU: Intel® Core™ 2 Duo Processor T8100 2.1GHz
Memory: 1x1GB
Hard Drive: 120GB
Optical: DVD±RW/±R DL/DVD-RAM
Graphics: Intel GMA X3100 Dynamic Video
Memory Technology 4.0
Connectivity: integrated wireless a/g/n + Bluetooth
Other: 3x USB 2.0 + integrated webcam



\$1339 | V6227 | Rent \$12.63/wk*

Satellite Pro P300 T9400

CPU: Intel® Core™ 2 Duo Processor T9400 2.53GHz
Memory: 2x2GB
Hard Drive: 640GB
Optical: DVD±RW/±R DL/DVD-RAM
Graphics: ATI Mobility Radeon HD 3650
Connectivity: integrated wireless a/g/n + Bluetooth
Other: 2x USB 2.0 + integrated webcam



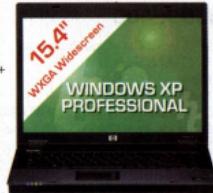
\$2420 | V9611 | RENT \$22.38/wk*

lenovo

TOSHIBA
Leading Innovation >>>

8510p T9300

CPU: Intel® Core™ 2 Duo Processor T9300 2.5GHz
Memory: 1x2GB
Hard Drive: 250GB
Optical: DVD±RW/±R DL/DVD-RAM
Graphics: ATI HD 2600 256MB dedicated video memory
Connectivity: integrated wireless a/g/n + Bluetooth
Other: 2x USB 2.0 + integrated webcam



\$1799 | V7852 | Rent \$16.98/wk*

SONY

VAIO FW17GU T9400

CPU: Intel® Core™ 2 Duo Processor T9400 2.53GHz
Memory: 2x2GB RAM
Hard Drive: 250GB
Optical: DVD±RW/±R DL/DVD-RAM / BLU-RAY
Graphics: ATI Mobility Radeon HD 3470 - 512 MB dedicated video
Connectivity: integrated wireless a/g/n + Bluetooth
Other: 2x USB 2.0 + integrated webcam



\$3399 | V9428 | Rent \$30.92/wk*

Microsoft Medialess License Kit (MLK)

The Medialess License Kit is the new way of purchasing Microsoft Office 2007 Professional and Small Business. Microsoft ready PC doesn't require any installation disks. Simply purchase this MLK to activate the Microsoft Office of your choice.

Medialess License Kits

V4773 | MS Office Professional 2007 | \$432
V4774 | MS Office Small Business 2007 | \$399

Extended Warranty

Protect your investment with a HT Extended Warranty Plan

- Cover for wear and tear, including parts and labour.
- 'No Lemon' Guarantee*
- 7 day customer service helpline

To find out more information on Extended Warranty, ask a Harris Technology team member.

*For terms and conditions, including RentSmart, see back page. *Available capacity of hard drive may be less due to preinstalled software.

**Basic Optical Mouse V2**

Optical technology allows user to navigate with better speed, accuracy and reliability
Get one-click access to frequently used features with customisable buttons
Provides smooth tracking on virtually any surface
Ambidextrous design provides comfort in either hand
PS/2 and USB compatible

19.95 | V2339**Ultra Flat Keyboard**

Experience superior typing comfort with an ultra-low profile keyboard
Adjustable keyboard height provides ergonomic comfort
Stylish design complements flat-screen monitors and allows users to save space
System requirements:
Windows Vista &
Windows XP/2000/98
USB & PS/2 enabled

35.95 | T9384**Cordless Desktop EX-110**

Contemporary design complements workspaces and provides comfort
Durable, spill-resistant design protects the keyboard from accidental spills
2.7 MHz wireless connectivity ensures reliability, speed and accuracy
Multimedia controls allow users to access music, videos, internet, email, volume control and more
Programmable F-Keys allow instant access to favourite applications, games, folders and webpages
Cordless mouse provides extreme precision that allows users to scroll through documents with ease

74.95 | SB9499**S-21 Speakers**

Stylus 2.1 stereo speakers can be connected to PCs for full balanced audio while accessing games, movies and music
Down-firing subwoofer provides rich, deep bass to enhance sound
Wired remote allows easy control over volume and power
Cable management system helps to reduce desk clutter
Includes headphone jack for private listening
Total peak power:
14 watts

44.95 | V8369

Logitech

V220 Cordless Notebook Mouse

- Comfortable and compact cordless mouse for notebooks with snap-on receiver
- Mini-receiver snaps onto the mouse and turns it off
- High-definition optical technology is more responsive
- Up to 6 months' battery life with low-battery indicator
- Side-to-side scrolling plus zoom: instantly zoom in and out, horizontally or vertically

\$39.95 | V0372**Natural Ergonomic Keyboard 4000** **Microsoft**

- Ergonomic design with integrated palm rest encourages natural wrist and arm alignment, providing users with total comfort
- Zoom in quickly and accurately with intuitive zoom
- Media controls allow users to navigate to next track, previous track, pause and volume control
- Five customisable keys allow users access to frequently used files, folders and websites
- Improved number pad allows easy access to commonly used symbols such as equals, left and right keys and backspace

\$74.95 | T0577**Wireless Laser Desktop 6000 V2****Microsoft**

- Ultra-thin comfort curve design with detachable cushioned palm rest, allows users to work naturally and comfortably
- Zoom in quickly and accurately with intuitive zoom
- Media controls allow users to navigate to next track, previous track, play, pause and volume control
- Five customisable keys allow users access to frequently used files, folders and websites
- Includes Gadgets button, providing one touch access to weather information and news updates
- Microsoft® High Definition Laser Mouse products are more precise, more responsive, and deliver smoother tracking

Was \$119
\$79 | V0410

GREAT
VALUE**Portable Notebook LapDesk**

- The Targus Notebook Portable LapDesk is a folding tray that supports a notebook computer while on laps
- Protects users from heat generated by laptops, and also increases airflow underneath notebooks
- The LapDesk can be packed easily in a notebook bag alongside a notebook and allows users to create a mobile workspace at home, in the car or on a plane
- Converts into a tilt stand, with 5 adjustable angles for maximum comfort
- Weight: 4.13.9g

\$49.95 | J2022

Desktops

acer

Veriton T661 XPP

- Intel Core 2 Quad Q6600
- 2GB 667MHz DDR2 SDRAM (2 x 1GB)
- 320GB* SATA Hard Drive
- 16x Dual Layer DVD+RW Drive
- Intel Graphics Media Accelerator 3100
- Windows XP Professional
- 3 Year Onsite Warranty



WITHOUT MONITOR

\$1299 | V4793 | RENT \$12.24/wk*
WITH VISTA BUSINESS | V8455

WITH BLACK 22" LCD MONITOR

\$1599 | V4863 | RENT \$15.09/wk*
SILVER | VB828



lenovo.

A57 Tower C2Q Q6600 2GB 320GB VHP + 19" LCD Monitor

- Intel Quad Core Q6600
- 2GB DDR2 RAM
- 320GB 7200rpm Hard Drive
- Vista Home Premium installed
- Lenovo L194W LCD monitor
- 1 Year Manufacturer's Warranty



\$1299 | V9943 | RENT \$12.24/wk*

Also available:

W0356 | **\$1399** | With Windows Vista Business | RENT \$13.20/wk*



A57 Small Form Factor ThinkCentre

- Intel Core 2 Duo E8400 3GHz
- 2GB 667MHz DDR2 RAM (2 x 1GB)
- 320GB* SATA Hard Drive
- 16x Dual Layer DVD+RW Drive
- Windows XP Professional
- 1 Year Limited Onsite Warranty



WITHOUT MONITOR

\$1249 | V6202 | RENT \$11.77/wk*

WITH 22" LCD MONITOR
\$1479 | V6478 | RENT \$13.95/wk*

WITH 22" LCD MONITOR
\$1479 | V6478 | RENT \$13.95/wk*

WITH 22" LCD MONITOR
\$1479 | V6478 | RENT \$13.95/wk*

lenovo.



dx7400 Business Desktop

- Intel Quad Core Q9300
- 2GB DDR2 SDRAM
- 250GB 7200rpm Hard Drive
- Microsoft Windows Vista Business with Windows XP Professional Downgrade CD
- 1 Year Limited Manufacturer's Warranty



WITHOUT MONITOR

\$1599 | V9615 | RENT \$15.09/wk*
WITH 22" LCD MONITOR
\$1699 | V9624 | RENT \$16.03/wk*

dx2300 MT C2D E4600

- Intel Core 2 Duo E4600 2.4 GHz
- 2GB DDR2 RAM
- 320GB 7200rpm Hard Drive
- Microsoft Windows XP Professional
- 1 Year Manufacturer's Warranty



\$799 | V8678 | RENT \$7.53/wk*



iMac 20" 2.66GHz

- All in One Apple iMac
- Intel Core 2 Duo 2.66GHz
- 2GB DDR2 RAM
- 320GB 7200rpm Hard Drive
- ATI Radeon HD 2600Pro
- 256MB DDR2
- Bluetooth 2.1 EDR, 802.11 a/b/g/n [draft], Gigabit Ethernet



\$1999 | V7842 | RENT \$18.86/wk*

apple Authorised Solutions Reseller



*For terms and conditions, including RentSmart, see page 24. *Available capacity of hard drive may be less due to preinstalled software.



Syncmaster 943N

Resolution: 1280 x 1024 / 75Hz
Brightness: 300 cd/m²
Contrast ratio:
2000:1 (dynamic)
Response time: 5ms
Dot pitch: 0.294 mm



\$259 | V5911

93WB

Interface: analogue/digital
Resolution: 1440 x 900 / 75Hz
Response time: 5ms
Contrast ratio: 2000:1
Brightness: 300 nits
All mountable
Fit function

Year Limited Warranty

\$279 | V2648

Syncmaster 2253LW

Display ratio: 16:10
Contrast ratio:
2500:1 (dynamic)
Brightness: 300 cd/m²
Resolution: 1680 x 1050
Response time: 2ms



\$349 | V7479

Syncmaster 2243BW

Dot pitch/pixel pitch:
0.282 mm
Max resolution:
1680 x 1050 / 60Hz
Colour support: 24-bit
(6.7 million colours)
Image aspect ratio: 16:10
Response time: 5ms
Image brightness:
300 cd/m²
Image contrast ratio:
2000:1 / 8000:1 (dynamic)
Signal input: DVI-D, VGA



\$329 | Matte Finish | V5326

\$355 | Glossy Finish | V9519

Syncmaster 743B

- Resolution: 1280 x 1024 / 75Hz
- Brightness: 300 cd/m²
- Contrast ratio: 7000:1 (Dynamic)
- Response time: 5ms
- Viewing angle: 170° / 160°
- Available in black or silver finish

\$269 | V5325
BLACK | V5324

acer



FA-19W

- Interface: analogue/digital
- Resolution: 1440 x 900
- Response time: 5ms
- Contrast ratio: 500:1
- Brightness: 300 nits
- Built-in speakers
- 3 Year Limited Warranty



\$279 | V1324

FUJITSU

X213WB

- Display ratio: 16:10
- Contrast ratio: 2500:1 (dynamic)
- Brightness: 300 cd/m²
- Resolution: 1680 x 1050
- Response time: 5ms



\$326 | V8211

acer

23" Cinema HD Display LCD

- Interface: digital
- Resolution: 1920 x 1200
- Contrast ratio: 700:1
- Brightness: 400 nits
- Sleek anodised aluminium case



\$1399

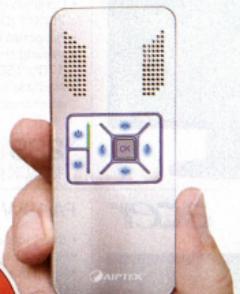
T8637 | RENT \$13.20/wk*

Authorised
Solutions Reseller

WORLD'S SMALLEST PROJECTOR Aiptek Pocket Projector

- Brand new LED light source
- Never change bulbs again
- Instant start-up
- Projects 50" image at a distance of 1.8m
- Resolution: 640 x 480
- 45 minutes Li-ion battery life
- Integrated stereo speakers
- Expansion: SD, SDHC, USB 2.0, AV input
- Compatibility: AVI, ASF, MP3 and JPEG files
- Includes tripod, pouch and remote control

AIPTEK



\$649 | V9644 | RENT \$6.12/wk*

NEW

TLP-X100

TOSHIBA
Leading Innovation >>



\$1299 | W0050 | RENT \$12.24/wk*

BONUS 75" Tripod Projector Screen or Aluminium Carry Box!

NEC

TOSHIBA

TOSHIBA

Leading Innovation >>

3LCD

acer

TOSHIBA

Leading Innovation >>

DLP

DLP



NP-100G

- DLP technology
- SVGA resolution (800 x 600)
- 2000 ANSI lumens
- 1200:1 contrast ratio
- Weight: 2.4kg
- 2 Year Limited Warranty

TDP-XP2

- DLP technology
- XGA 1024x768 resolution
- 2500 ANSI lumens
- 2000:1 contrast ratio
- Weighs 2.2kg
- 3 Year Warranty
- Integrated speaker
- 90 Day Lamp and Product Replacement

P1265

- DLP technology
- SXGA+ 1400 x 1050 max resolution
- 2400 ANSI lumens
- 2000:1 contrast ratio
- Weighs 3kg
- 2 Year Return To Base Warranty
- Integrated speaker
- Includes remote control with laser pointer

TDP-P9 ULTRA LIGHT

- DLP technology
- XGA 1024 x 768 resolution
- 2000 ANSI lumens
- 2000:1 contrast ratio
- Weighs only 1.3kg
- 3 Year Warranty
- Integrated speaker
- 90 Day Lamp and Product Replacement
- Includes soft carry case and rem

\$686

V7557 | \$6.46/wk*

\$1269

V8544 | \$11.96/wk*

\$1299

V2860 | \$12.24/wk*

\$1649

V3644 | \$15.56/wk*

BONUS 75" Tripod Projector Screen or Aluminium Carry Box!

BONUS 75" Tripod Projector Screen or Aluminium Carry Box!

*For terms and conditions, including RentSmart, see back page of catalogue. *Bonus via redemption from Toshiba.



ProLiant ML110G5 Server Bundle SBS Standard

Intel Core™2 Dual-Core Intel Pentium® Processor E2160 Processor
8GHz, 65W, 800MHz FSB, 1MB L2 Cache]
8GB PC2-6400 ECC [DDR2-800MHz]
P embedded 6 port SATA controller with embedded RAID
x 160GB NHP SATA HDDs
3x SATA DVD-ROM
Microsoft Windows SBS Standard Edition R2



1499 | V5745 | RENT \$14.14/wk*

Available: ProLiant ML110G5 E2160
Server Bundle SBS Premium
44 | \$2099 | RENT \$19.80/wk*

Universal Series PS Serial & USB

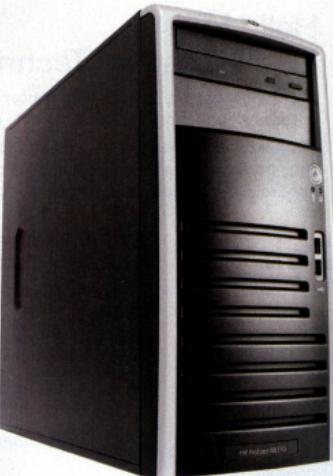
500VA and 450W output power
5ms backup time
I-11 and RJ-45 outlet connectors
dogPlus shutdown software
compatible with Windows XP
provides 4 sockets: 3 battery
backup sockets w/ surge
protection; 1 socket with surge
protection only
Year Warranty

369 | H9169

Home Series 4-Way (2m Cord) + \$40,000 Warranty

Belkin Home Series is perfect for entry-level computers, printers, ADSL modems, audio/video, everyday general household electronics. Offering up to 1034 joules, AC/phone, modem, cable broadband protection, cable management, recessed sockets, insulated pins, this is a premier protection for clean, safe power protection and the industry's best in construction.

16 | N3358



BELKIN



Back-UPS RS 1000VA

This high performance desktop battery backup features maximum protection in a versatile design. The fully featured APC Back-UPS RS can be placed on the floor, or on a shelf.

- 1000VA and 600W output power
- 16.6ms backup time with half load and 5.9ms with full load
- 6x IEC 320 C13 and 2x IEC 320 C13 surge

\$499 | J5134

APC



BELKIN



Gold Series 8-Way (2m Cord) + TEL + \$250,000 Warranty

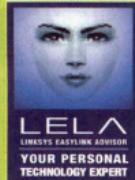
The Gold Series is perfect for professional workstations, laser printers, broadband modems, home theatre systems, Ethernet networks, and everyday household electronics. Offering up to 3240 joules, AC/phone, fax/modem, coaxial/cable broadband protection, Ethernet protection, 360° rotating plug with insulated pins, cable management, and recessed sockets.

\$123 | N3352

BELKIN



*For terms and conditions, including RentSmart, see page XX. Onsite warranty is up to 80km from an HP Authorised Onsite Service Provider.



Hello LELA! Your Personal Technology Expert

These new generation Linksys routers come with LELA (Linksys EasyLink Advisor), a free software that is designed to simplify the set up and management of your wireless networks. LELA works in the background and it tracks potential problems or security breaches before they do any damage. It also configures all devices and has a display to monitor operating status. Get connected wirelessly with Linksys!

WRT160N Ultra RangePlus Wireless-N Broadband Router

- Internet-sharing router and 4-port switch, with a built-in speed and range enhanced wireless access point
- MIMO technology uses multiple radios to create a robust signal that travels farther and reduces dead spots



\$149 | V7034

WAG160N Wireless N ADSL2+/2 Gateway

- High-speed ADSL2+ modem gives you a fast, "Always On" connection to the Internet
- Connect your PCs via the built-in router and 4-port switch to jump start your ethernet network and share the Internet
- Built-in Wireless N (draft 802.11n) access point also lets you connect without running wires – far faster than standard Wireless G

\$199 | V7268

WRT310N Wireless-N Gigabit Router

- Internet-sharing router and 4-port gigabit switch, with a built-in speed and range enhanced wireless access point
- MIMO technology uses multiple radios per band to create robust signals for maximum range and speed, with reduced dead spots
- Much faster than Wireless-G, but also works great with Wireless-G and -B devices



\$218 | V7269

OFFICE NETWORKING SOLUTIONS

D-Link

Building Networks for People

Web Smart DES-1228P – Switch

- 24 Ports IEEE 802.3af PoE
- 802.1p, 802.1Q, 802.1D
- CPU DoS protection to ensure uptime

\$795 | U8798 | RENT \$749/wk*

Also available: Wireless Switching 108g Access Point for DES-1228P | V9058 | \$159



DFL-260 UTM Firewall for SOHO

- Integrated firewall/VPN appliance
- Intrusion Prevention System (IPS)
- Anti-Virus (AV) protection
- Web content filtering (WCF)

\$999 | V5016 | RENT \$9.41/wk*

Also available: DFL-210 NetDefendTM Security Firewall for SOHO | T8412 | \$629 | RENT \$5.93/wk*



DGS-1216T 16-Port Smart Switch

- 32Gbps switching capacity
- 10/100/1000Mbps migration
- Fiber media support via SFPs
- 4,000 MAC address table

\$549 | N1045



NETGEAR

GS108T ProSafe 8-Port Gigabit Smart Switch

- 8 10/100/1000 ports
- 802.1x, ACLs
- Rate limiting
- DSCP/TOS-based prioritisation
- IGMP Snooping, SNMP v1, v2, RSTP
- Easy to manage through web-based GUI



\$265 | U8869

GS724T Prosafe 24-Port Gigabit Smart Switch

- Ideal for growing businesses who want the benefits of management without the cost and complexity of traditional managed switches.
- 24 10/100/1000 Mbps gigabit ports
- Non-blocking bandwidth
- Easy, browser-based switch management



\$729 | N3147 | RENT \$6.87/wk*



GS748T Prosafe 48-Port Gigabit Smart Switch

- 48 10/100/1000 Mbps gigabit ports
- Non-blocking bandwidth
- Easy, browser-based switch management
- Rack mountable
- 4 small form-factor pluggable (SFP)* + GBIC slots



\$1399 | Q9557 | RENT \$13.20/wk*



*For terms and conditions, including RentSmart, see page 20.



D-Link
Building Networks for People

NETWORK SWITCHING | WIRELESS LAN | ROUTING | FIREWALL / VPN
IP CAMERAS | VOIP | NETWORK STORAGE | SERVICES & SUPPORT

DIR-300 Wireless G Router

IEEE 802.11b/g compatible

Share your internet with free Tomizone hotspot

Share your internet connection with built-in 4-port switch

Advanced firewall and security

Advanced scheduling and user level control

Supports VPN pass-through

WPA [TKIP] and WPA2 [AES] support

Interactive install guide

UPnP/TM support

\$69.95

| V5010

DWA-110 WIRELESS G USB ADAPTER V5013 | \$39



DIR-615 Wireless N Router

Share internet access with PCs, game consoles, and media players

Parental controls to supervise internet activity

Firewall protection for your network

Backward compatible with 802.11g and 802.11b



\$99

| V2323

DWA-110 WIRELESS G

USB ADAPTER | V5013 | \$39



NETGEAR™ Routers & Gateways

Not only do they work well, but they look terrific too. Inside our award-winning design you will find the range and coverage you need for today's demanding applications. Count on them for ease-of-use, quality, reliability and security.

WGR614 Wireless G Router + 4 Ports

Faster speeds up to 54 Mbps in 2.4 GHz mode

Share your Cable/DSL Internet connection with or without wires!

Smart Wizard automatically detects and connects to your ISP

True Firewall with SPI and NAT protection

Easy setup with interactive installation tutorial

\$79

| J2416



WNR2000 WIRELESS N ROUTER

Simple and secure way to share your high-speed Internet connection

Works with older Wireless-G devices and new Wireless-N devices

Push 'N' Connect securely connects at the touch of a button

Use with a RangeMax Wireless-N Adapters and boost your performance and range

\$119

| V9711



DSL-G604T Wireless G ADSL2+/2+ Modem/Router with 4 Ports

- ADSL2+/2+ modem/router with 54Mbps wireless and built-in 4 port switch
- Built-in SPI firewall, DHCP Server
- 4 port Fast Ethernet and 802.11g wireless connectivity

\$119

| P3062

DWA-510 WIRELESS G DESKTOP ADAPTER

V5014 | \$39



DSL 2740B RangeBooster N™ ADSL/ADSL2+/2+ Modem Router

- Draft 802.11n wireless LAN specification, backward compatible with 802.11b/g devices
- Multiple SSIDs
- Up to 270Mbps raw data transfer rate
- Strong WPA/WPA2 data encryption security
- 4 built-in 10/100Base-TX switch ports with auto MDI/MDIX support

\$289

| U6165

DWA-547 RANGEBOOSTER N 650 WIRELESS LAN

PCI ADAPTER | T9470 | \$139



DIR-655 Xtreme N Gigabit Router

- Draft 802.11n speeds up to 14x faster than Wireless G
- Greater coverage for your entire home or office
- Intelligent QoS technology for superior VoIP and online gaming
- Connect computers, game consoles, or media players to the Web



\$289

| U5726

DWA-645 RANGEBOOSTER N 650 WIRELESS

LAN PCMCIA CARD | T9472 | \$139

DG834G ADSL 2/2+ 54Mbps Wireless G ADSL Modem/Router

- Combines modem, router, switch, 802.11g access point, and SPI True Firewall
- Up to 5X faster than 802.11b
- True Firewall with Stateful Packet Inspection [SPI] & Intrusion Control, Denial of Service [DoS], Virtual Private Network [VPN] pass-through



\$135

| L2609

WG111 WIRELESS G WIRELESS USB ADAPTER | N6536 | \$39

WNDR300 RangeMax Dual Band Wireless N Router

- Surf, email, stream HD video, online game, make Internet phone calls - simultaneously
- More wireless channels, less interference and better connections using dual band Wireless N
- Wirelessly connect new devices easily and securely with Push 'N' Connect



\$249

| V5257

Free Agent Go 250GB

- Easily store your photos, music, and other files
- Carry your data while you travel, or to and from work and home
- Quickly sync and back up at your desktop without having to search for cables
- Keep important files and folders private
- Get your storage solution up and running quickly
- Optional docking cradle sold separately

\$149 |W0333

320GB |W0335 |\$179
500GB |W0337 |\$349
Docking Cradle |W0337 |\$29



NEW

Passport Essentials 320GB Pocket HDD

- High-speed USB
- Fits in your pocket
- PC and Mac compatible
- 3 Year Limited Warranty

\$149 |V6728 |BLACK

BLUE |V6876
RED |V6877



WD Western Digital

Passport Elite Titanium 320GB Pocket HDD

- Luxurious soft-touch finish
- Easy to grip, comfortable to hold, and beautiful to show off
- Automatic backup capabilities
- Capacity gauge

\$199 |V7358



WD Western Digital

MyBook Essentials 1TB

WD Western Digital

- Windows 2000/XP/Vista and Mac OS X 10.4.8 [or later] compatible
- Easy to set up, easy to use
- USB 2.0 interface
- Instant storage
- SmartPower™

\$199 |V3265

Also available:
750GB |V3313 |\$189



MyBook Studio 1TB

WD Western Digital

- Easy to setup and easy to use
- FireWire 400/800 & eSATA connectivity
- Automatic backup capabilities
- Designed to work with your MAC

\$379 |V5991

Also available:
2TB Studio II Dual Drive
with e-SATA |V9527 |\$599



WD Western Digital

Slim Portable 8x DVD±RW with LightScribe

LAZIE

- USB bus-powered
- Double layer DVD technology
- LightScribe labelling software [Windows]
- Easy Media Creator Suite 9 burning software [Windows]

\$129 |V2283

Also available:
D2 Desktop |V1814 |\$169
D2 Next Desktop |V2267 |\$129



Blu-ray Writer

PIONEER

This writer is the all-in-one solution for anyone wanting to create high quality content for Blu-ray Disc, DVD or CD. Offering revolutionary 4x burning speed, it can create a full BD-R 25GB disc in around 25 minutes.



\$429

U8692
Delivery only

Also available:
BR-COMB |U8691 |\$229
EXT DVD RW |V7835 |\$129
INT DVD RW |V7636 |\$64.95

MyBook Mirror 2TB Dual Drive

WD Western Digital

- RAID mirroring technology for ultimate data protection
- Automatic software backup
- Capacity gauge

\$549 |W0063

Also available:
1TB |W0328 |\$269



2000i CD/DVD Duplicator

RIMAG

- Professional digital printing and publishing solution combining speed and reliability
- Large 100-disc input
- Innovative ink management system

\$5499 |W0074



Delivery only
Shipping Applicable

HOT DEALS on USBs

SONY Microvault Click

4GB V7499 **\$33.95**

8GB V7498 **\$57.95**

16GB V7497 **\$99**

SONY Turbo Click

V7662 **\$39.95**

V7663 **\$72.95**

-

SanDisk Cruzer U3

U8760 **\$29.95**

V2315 **\$49.95**

V9111 **\$99.95**

SanDisk Cruzer Titanium

U8762 **\$39.95**

V6856 **\$69.95**

-

SanDisk Cruzer Contour

-

U8758 **\$79.95**

V6855 **\$129**

**ReadyNAS Pro 1.5TB Desktop NAS**

Data protection with auto RAID management
and online volume expansion
works with Windows®, Mac®, and Linux®
clients across the network
Dual Ethernet failover design for
high availability
CSI compatibility with Microsoft
Exchange and database servers

\$3099 | W01809 | RENT \$28.51/wk*
8B | W0320 | \$4299 | RENT \$38.32/wk*
8B | W0321 | \$6599 | RENT \$55.11/wk*

NETGEAR**NEW****ReadyNAS™ Duo NETGEAR**

10GB Intelligent NAS
Digital Media
compatible with SATA and SATA II HDD
Hot swappable and lockable trays
Ethernet Gigabit
USB 2.0 ports
embedded BitTorrent® client
direct downloading from
the internet

\$579 | V5249 | RENT \$5.46/wk*

NETGEAR**NEW****B ShareSpace**
Desktop NAS

Accessible from anywhere
Small-footprint, 4-Bay
System
Silent, quiet and
eco-friendly. Includes
10D GreenPower™
Drives

\$399 | W0158 | RENT \$13.20/wk*

*available:
3 | W0361 | \$699 | RENT \$6.59/wk*

Western Digital**SATA Internal**
Hard Drive Upgrade Kit

Fast performance
ATA 3 Gb/s and
S-ATA interface
2MB Cache, 5 Year
Warranty

**REduced
\$80**

\$19 | W0206

Seagate**Australia's largest range of backup drives and media****LTOrium LTO Data Cartridge**
C7972A 400GB

High capacity data cartridge to store
& restore data for backup & archival
LTO Generation 2
400GB
compressed capacity

\$49 | H0334

**StorageWorks External RDX 160 Removable Disk Backup System****hp invent**

- Affordable and rugged data protection solution
- Fast disk based performance
- Ability to store 160GB or 320GB of data on a single removable disk cartridge
- Drag and drop file access
- Includes 'hands free' HP RDX continuous data protection software
- Long lasting removable disk cartridges

\$549 | W0204160GB Cart | W0346 | \$349
320GB Cart | W0347 | \$579**NEW****ReadyNAS™ NV+Gigabit Desktop NAS**

- Perfect NAS for small office and home office
- Patent pending XRAID™ technology
- Hot swappable
- Small 8" high desktop design

NO DISK | V1246 | \$1389
1TB 4 DISKS | U8794 | \$1449
2 TB 2 DISKS | V5008 | \$2399**NETGEAR****NEW****ReadyNAS™ 1100 NETGEAR**
Dual Gigabit Rackmount NAS

- 2 Gigabit interfaces
- RAID technology
- 4 Hot Swap SATA disks
- 12" deep 1U

3 TB | U8818 | \$3900
4 TB | V4971 | \$6399**Delivery Smart Charge Apply****LACIE****1TB Big Disk Gigabit**
Ethernet Mini External
HDD

- Gigabit Ethernet and
USB 2.0 interface
- Expandable capacity
through a USB host port
- User and share level
permissions

\$479 | U5309**1TB LinkStation Mini BUFFALO**

- Massive 1TB capacity
in the palm of your hand
- Dual drive
- Included DLNA server
- Support for RAID 0
and RAID 1
- Quiet fan-less design

\$699 | W0348 | RENT \$6.59/wk***BUFFALO****NAS200 2-Bay Enclosure**

- Easily add storage space onto
your network with two SATA
hard drive bays
- Add extra storage with
two USB 2.0 ports
- Share files locally or
through the Internet
from any PC

LINKSYS**DNS-313 1-Bay**
SATA NAS Enclosure

- Power management to conserve
energy and extend life of hard drive
- Easy to use, manage by your
web browser
- Secure and share your digital files
- Access stored files over the internet.

\$189 | V5002
DNS-323 2 Bay | U4955 | \$349**D-Link**

Building Networks For People

**NAS200 2-Bay Enclosure**

- Easily add storage space onto
your network with two SATA
hard drive bays
- Add extra storage with
two USB 2.0 ports
- Share files locally or
through the Internet
from any PC

\$199 | V0668**hp invent****StorageWorks DAT 160**
USB External Tape Drive

- Highest capacity and performance DAT drive
- 160GB compressed data per cartridge at 5.0GB/hr
- USB 2.0
- Plug-and-play connectivity,
enabling backup in
less than 60 seconds

\$999 | V5039

*For terms and conditions, including RentSmart, see back page of catalogue.

Dragon Naturally Speaking Ver 10

- New UI look and feel
- Improved help system and tutorials
- Quick voice formatting
- Improved natural commands for Mozilla Firefox
- Regional accent support

\$149 | V9754



NEW

Software

ACT! by Sage 2009 + Free ACT! Quick Study Guide

Renowned for its ease of use, ACT! helps business professionals all over the world connect and succeed.

- New and improved superior Outlook integration
- Enhanced performance

\$279 | V0071



NEW

Total User Protection 2009 - 3 User

- Ultimate, easy-to-use PC and online protection with powerful website safety advisor

\$119 | V9730



TurboCAD 15 Deluxe

- All-purpose CAD program for all home and office projects
- Create precision 2D drawings, intricate 3D models
- Utilise powerful photorealistic rendering tools to present your ideas
- Includes symbols and 200 + 2D training lessons

\$179 | V7568



NEW

Acrobat 9 Pro

- Create and reliably share PDF documents
- Convert email to PDF
- Insert video in PDF files

\$589

WIN | V8278
MAC | V8279



CS3 Design Standard 3.3

- Great for page layout, image editing, illustration and Adobe PDF workflows

\$1879 | V8452

DESIGN PREMIER | V8445 | \$2846



AutoCAD LT 2009 Autodesk - New Seat

AutoCAD LT is a powerful solution for designers who need full DWG™ native file format compatibility without 3D capabilities or advanced customisation. Increase efficiency with an updated user interface that not only accelerates routine tasks, but also makes commands easier to find, helping new users become productive as quickly as possible. Working with layers is now easier than ever. Move to new heights of productivity with AutoCAD LT software.

\$1869 | V6844



BONUS

● **BONUS** Training Book - AutoCAD + AutoCAD LT Bible 2009 valued at \$69.95¹

AutoCAD 2009 Autodesk - New Seat

New innovative features simplify working with layers and help make new users productive as quickly as possible. Easy-to-use navigation tools make finding your way around 3D models a snap. Move to new highs of productivity with AutoCAD software.

\$6197 | V6845

● **BONUS** Training Book - AutoCAD + AutoCAD LT Bible 2009 valued at \$69.95¹

Autodesk



BONUS

Quark Express V8 Full Seat

QuarkXPress® 8 delivers superior page-layout and design power through an intuitive interface, print, Web, and Flash® authoring tools, and designer-driven typography. Push creativity to its limits. Xperience Design!

\$1275 | W0098

QUARK 8 UPGRADE | W0099 | \$472



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- A minimum purchase of just five licenses.
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¹Bonus AutoCAD training book via redemption from Scholastic, offer valid from 01/09/08 until 30/10/09.

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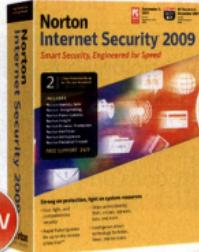
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aid install (averaging less than 1 minute)
uses less than 10MB memory and only
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bots, key loggers and new threats.

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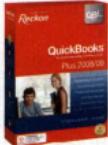
harris technology



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\$149 | 5 USER | W0103

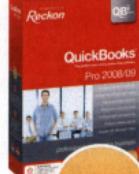
\$39 | W0081ckBooks Plus
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+ Bonus 1.5"
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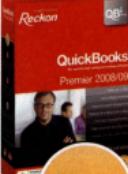
Paint Shop Pro
Ultimate x2**COREL**

New Features

- New Raw Lab with support for over 170 cameras
- Windows Vista™ Certified

Valuable extras

- 2 GB USB flash drive
- Media recovery software that retrieves lost photo, video and sound files from reformatted memory cards

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BONUS \$200 Fuel Card^

Video Studio Pro
x2 Ultimate**COREL**

Full standard and HD editing

- Pro audio tools
- Unique special effects
- DVD Blu-ray playback

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No 2 Ink Cartridges



\$1378 EA.

T16351 | Cyan
T16341 | Magenta
T16361 | Yellow
T16371 | Light Cyan
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88 Large Black Ink Cartridge



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Canon PGI-5 Black Ink Cartridge Twin Pack



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Canon CLI-8 Black and Colour Inks + PGI-5 Black Ink Cartridges Value Pack



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INKS

HT Part Vendor Part Colour



T0165	C4844AA	10 Black	\$59.95
T3790	C9396A	88 Black - Large	\$75.95
Q1870	C9363WA	97 Tri-Colour	\$99.95
Q1680	C8765WA	Black	\$35.95
T1633	C8721WA	Black	\$31.95
Q1677	C8767WA	96 Black - High Volume	\$53.95
Q1676	C8766WA	95 Tri Colour	\$39.95
U8950	C4936A	18 Black	\$32.95
T0852	C9351AA	21 Black	\$25.95
22643	51645AA	45 Black	\$52.95
V1604	C0629AA	56/57 Twin Pack	\$64.88
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T3786	C9391A	88 Cyan - Large	\$41.95
T7733	C9364WA	98 Black	\$29.95
T3787	C9392A	88 Magenta - Large	\$41.95
S2199	C6656AA	56 Black	\$32.95
S3034	C5678DA	78 Tri-Colour	\$56.95
B1729	C4837AA	11 Magenta	\$54.95
C6899	C4943A	83 UV Yellow	\$421.00
B1725	C4836AA	11 Cyan	\$59.95
QD251	C8727AA	27 Black	\$32.95
T1633	C8773WA	02 Yellow	\$13.78
U8951	C4939A	18 Yellow	\$24.95
T1634	C8772WA	02 Magenta	\$13.78
T1658	C9361WA	93 Tricolor	\$32.95
B8508	C4810A	11 Black	\$59.95
T1633	C8771WA	Cyan Ink	\$13.78
U1023	SA307AA	94/95 Combo Pack	\$60.95
B1728	C4838AA	11 Yellow	\$59.95
U8954	C4937A	18 Cyan	\$24.95
A2595	C6615DA	15 Black	\$48.95
97335	C6578AA	78 Tri-Colour	\$99.95
F9868	C6657AA	No 57 Tri-Colour	\$45.01
U8952	C4938A	18 Magenta	\$24.95
T1659	C9362WA	92 Black	\$25.95
U8497	C6620AA	56 Black	\$58.95
T1639	C8775WA	02 Light Magenta	\$13.78
V2813	CB336WA	74XL Black	\$51.95
G1679	C9369WA	99 Tri-Colour Photo	\$43.95
C5155	C4811A	11 Cyan	\$59.95

LEXMARK

E0842	10N0016	16 Black	\$47.99
V2741	TPANZ02	27 Colour & # 17 Black Hi-Res Cartridge	\$52.00
U8388	TPANZ09	32 & 33 Twin Pack	\$42.00
P7483	18C0034	34 Black	\$42.00
P7484	18C0035	35 Colour Print	\$50.00
F1662	18L0032	82 Photo Black	\$49.00
F1664	18L0042	83 Photo Colour Cartridge	\$54.00
V0909	18Y0144A	Black	\$43.00

Price HT Part Vendor Part Colour

EPSON

T7644	C13T049290BP	TO49 Ink Bundle & 50 Sheet Photo Paper Pack
M0952	C13T049100	T0491 Black
N6690	C13T054290	T0542 Cyan
N6692	C13T054390	T0543 Magenta
S3494	C13T059690	T0596 Light Magenta
N9686	C13T054890	T0548 Matte Black
N6694	C13T054490	T0544 Yellow
U5322	C13T081190	T0811 Hi-Capacity Black
M1055	C13T049590	T0495 Light Cyan
M1063	C13T049490	T0494 Yellow
S3493	C13T059590	T0595 Light Cyan
S3350	C13T059490	T0594 Yellow
N9687	C13T054190	T0541 Photo Black
N7070	C13T054990	T0549 Blue
M1060	C13T049690	T0496 Light Magenta
96455	C13T070791	T007 Black
N7068	C13T054790	T0547 Red

brother

U1087	LC57BK	LC57BK Black
T7161	LC47CL3PK	47 Colour Value Pack
U1088	LC57C	57C Cyan
U1090	LC57Y	LC57Y Yellow
U1089	LC57M	LC57M Magenta
T7160	LC47BK2PK	LC47BK Black Ink Twin Pack

SAMSUNG

F5233	INK-M40	Black
D8975	INK-M10	Black
Canon	advanced technology	
J4497	CLIBVP	CLIBVP Value pack 1x CLIBBK/C/M/Y & 240 sheets Paper
S9562	PG15BK	PG15BK Black
V7325	CLIBVPII	CLIBVP II Value pack 1x CLIBBK/C/M/Y & 250 sheets Paper
S9564	CLIBM	CLIBM Magenta
S9565	CLIBY	CLIBY Yellow
S9563	CLIC	CLIC Cyan
H8779	BC15BK	BC15BK Black
V2202	PG15BK-TWIN	PG15BK-Black InkTank - 2 Packs
R8653	BC16C	BC16C Colour
81586	BC3eBK	BC3eBK Black
S9587	CLIBBK	CLIBBK Black
C3428	BC16Y	BC16Y Yellow
C3426	BC16M	BC16M Magenta
S7128	PG40	PG40 Black
C3424	BC16C	BC16C Cyan
C3420	BC16BK	BC16BK Black
S9213	CL41	CL41 Tri Colour
W0076	CLIBPLUS	CLIB BK/C/M/Y PG5 BK
W0078	BC16PLUS	BC16 BK/C/M/Y BC3 BK



s & Toners

ONERS

Part	Vendor Part	Colour	Yield	Price	HT Part	Vendor Part	Colour	Yield	Price
0	Q3964A	Drum	20,000 Blk /5,000 C/M/Y	\$289.00	T7314	12017SR	Black	2,000	\$109.00
1	Q2612A	Black	2,000	\$96.00	T7975	X340H11G	Black	6,000	\$192.00
8	Q6000A	Black	2,500	\$99.00	U2318	C5220KS	Black	4,000	\$153.00
5	Q3960A	Black	5,000	\$149.00	L5690	18S0090	Black	3,200	\$109.00
3	Q5949X	Black	6,000	\$19.00	U2427	C5220CS	Cyan	3,000	\$175.00
0	Q7553X	Black	7,000	\$226.00	N5852	20K1400	Cyan	6,600	\$352.00
0	Q6001A	Cyan	2,000	\$139.00	U0636	20J10HR	Black	21,000	\$482.00
1	Q6002A	Yellow	2,000	\$139.00	U2408	C5220YS	Yellow	3,000	\$175.00
2	Q6003A	Magenta	2,000	\$139.00	N5855	20K1403	Black	10,000	\$260.00
8	Q6470A	Black	6,000	\$219.00	U5909	E250A11P	Black	3,500	\$155.00
28	Q3962A	Yellow	4,000	\$169.00	U2374	C5220MS	Magenta	3,000	\$175.00
22	Q3963A	Magenta	4,000	\$169.00	T6319	24017SR	Black	2,000	\$95.00
27	Q3961A	Cyan	4,000	\$169.00	N5853	20K1401	Magenta	6,600	\$352.00
4	Q5942X	Black	20,000	\$349.00					
1	CB436A	Black	2,000	\$121.00					
9	Q7553A	Black	3,000	\$123.00					
31	C7115X	Black	3,500	\$129.00					
10	O1338A	Black	12,000	\$234.00					
3	Q5942A	Black	10,000	\$229.00					
1	O6511X	Black	12,000	\$349.00					
6	Q7560A	Black	6,500	\$205.00					
9	Q6471A	Cyan	4,000	\$211.00					
33	Q7551X	Black	13,000	\$333.00					
9	C8061X	Black	10,000	\$199.00	R7833	1710605-006	Yellow	12,000	\$414.00
8	O6511A	Black	6,000	\$199.00	R7835	1710605-008	Cyan	12,000	\$414.00
0	Q6472A	Yellow	4,000	\$211.00	R7834	1710605-007	Magenta	12,000	\$414.00
9	C9733A	Magenta	12,000	\$480.00	F8853	1710517-006	Yellow	4,500	\$219.00
22	Q5949A	Black	2,500	\$119.00	F8854	1710517-007	Magenta	4,500	\$219.00
2	C9720A	Black	9,000	\$239.00					
0	Q7516A	Black	12,000	\$299.00					
2	C4096A	Black	5,000	\$169.00					
1	O6473A	Magenta	4,000	\$211.00					
47	C9732A	Yellow	12,000	\$480.00					
77	Q7551A	Black	6,500	\$209.00					
3	Q7561A	Cyan	3,500	\$197.00	M0980	113R00628	Black	15,000	\$396.00
6	C9731A	Cyan	12,000	\$480.00	R6903	C7200652	Yellow	4,000	\$199.00
6	C4129X	Black	10,000	\$249.00	R6901	C7200650	Cyan	4,000	\$199.00
7	Q7581A	Cyan	6,000	\$266.00					
5	C9730A	Black	13,000	\$342.00					
0									
14	FX9	Black	2,000	\$149.00					
38	CARTU	Black	2,500	\$119.00					
6	CART30B	Black	2,500	\$100.00					
8	CART303	Black	2,500	\$109.00					
7	CART308II	Black	2,500	\$188.00					
4	EP26CART	Black	2,500	\$129.00					
14	CART301D	Drum	-	\$299.00					
2	CART301BK	Black	5,000	\$149.00					
9	EP22CART	Black	2,500	\$109.00					
4	CART301C	Cyan	4,000	\$159.00					
6	CART301M	Magenta	2,000	\$169.00					
3	EP87D	Drum	-	\$269.00					
8	CART301Y	Yellow	4,000	\$169.00					
14	FX9	Black	2,000	\$149.00					
38	CARTU	Black	2,500	\$119.00					
6	CART30B	Black	2,500	\$100.00					
8	CART303	Black	2,500	\$109.00					
7	CART308II	Black	2,500	\$188.00					
4	EP26CART	Black	2,500	\$129.00					
14	CART301D	Drum	-	\$299.00					
2	CART301BK	Black	5,000	\$149.00					
9	EP22CART	Black	2,500	\$109.00					
4	CART301C	Cyan	4,000	\$159.00					
6	CART301M	Magenta	2,000	\$169.00					
3	EP87D	Drum	-	\$269.00					
8	CART301Y	Yellow	4,000	\$169.00					
15	TN-2025	Black	2,500	\$77.00	T6647	SCX-4521D3/SEE	Black	3,000	\$125.00
6	TN-3185	Black	7,000	\$129.00	J9653	SCX-4216D3	Black	3,000	\$125.00
33	TN-155Y	Yellow	4,000	\$190.00	TO776	ML-2010D3/SEE	Black	3,000	\$125.00
10	TN-155M	Magenta	4,000	\$190.00	J2380	ML-171003	Black	3,000	\$125.00
18	TN-3060	Black	5,1540/ 51500/ 51700N/ 8840/ 8440/ 6700 YE	\$149.00	U0652	CLP-K300A/SEE	Black	2,000	\$99.00
4	TN-155C	Cyan	4,000	\$190.00	M9755	CLP-5000TK/ Black	7,000	\$159.00	
43	TN-048K	Black	10,000	\$249.00	S2534	CLP-5100TK/ SEE	Black	7,000	\$179.00
2	DR-2025	Drum	-	\$149.00	T6648	SCX-D4200A/SEE	Black	3,000	\$125.00
44	TN-04C	Cyan	6,600	\$249.00	M9756	CLP-5000DC	Cyan	5,000	\$179.00
70	TN-7600	Black	6,500	\$127.00	S2538	CLP-5100SY	Yellow	5,000	\$189.00
3	TN-155BK	Black	5,000	\$143.00	S2536	CLP-5100C	Cyan	5,000	\$189.00
4	TN-155C	Cyan	4,000	\$190.00	M9757	CLP-5000SM	Magenta	5,000	\$179.00
43	TN-048K	Black	10,000	\$249.00	S2537	CLP-5100DM	Magenta	5,000	\$189.00
2	DR-2025	Drum	-	\$149.00	U0655	CLP-Y300A/SEE	Yellow	1,000	\$79.00

LEXMARK

KONICA MINOLTA

FUJI XEROX

SAMSUNG

brother
at your side

TN-2025

Black Toner Cartridge

\$77

R7305

hp

Inkjet

LaserJet 12A

Toner Cartridge

\$96

L0381

SAMSUNG

CLP-P300C

Black and Colour Toner Cartridge

4 Pack



\$249

V0475

**GREAT RANGE
BIG BRANDS,
INK & TONER**

NEW One 3.5" GPS

- The NEW TomTom One is a portable navigation device that is easy to use and has the latest maps and technologies
- New ultra compact pocketable design with 3.5" touch screen maximises portability
- Crystal-clear 3D graphics with pre-loaded Whereis V15 2008 mapping on 1GB internal memory
- Loud and clear voice instructions guide users on their journey, including text-to-speech street names
- Provides users with speed camera warnings

Was \$349

\$299 | V8490



GO 930 GPS

- Stylish and slim design with an extra-wide 4.3" touch LCD screen and built-in FM transmitter with MP3 Playback and iPod connectivity
- The ultimate device for an avid traveller providing crystal-clear 3D graphics and points of interest worldwide on 4GB of internal memory
- Provides latest maps for Australia, New Zealand, Europe and North America encompassing 45 countries
- Features enhanced positioning technology for uninterrupted navigation in tunnels and built up areas



\$849 | V9249 | RENT \$8.00/wk*

S30 3.5" GPS

- The Navman S30 is a slim and light pocket-sized device, providing drivers with a user-friendly interface that is easy to use
- Features a 3.5" touch screen that displays the latest comprehensive maps Australia wide from SensisWhereis
- The Navman S30 is preloaded with the latest speed and red light camera information, providing users with audible and visual alerts
- Includes a vast list of places of interest such as accommodation, places to eat, attractions, shopping, leisure activities, and much more

\$299 | V1308

Navman latest map guarantee – Upgrade to 2008*



NAVMAN

S90i 4.3" Widescreen GPS

- The Navman S90i is a slim and light pocket-sized device, providing drivers with a user-friendly interface that is easy to use
- Features a 4.3" touch screen that displays the latest comprehensive maps Australia wide from SensisWhereis
- Features a 2 megapixel integrated NavPix camera, so users can take NavPixs to upload and share with others
- Text-to-speech feature enhances audible directions providing easy guidance to locations



\$549 | V1313

Navman latest map guarantee – Upgrade to 2008*

Touch II Smartphone

- HTC Touch revolutionises the touch screen experience by allowing finger scrolling and panning
- Windows Mobile 6 Professional allows users to send and receive emails and access Microsoft Office documents while on the move
- Optimised for entertainment, the HTC Touch allows users to enjoy music and videos on the move
- 2.8" high-resolution LCD touch-sensitive screen allows for an optimised internet browsing experience
- Take photos of family and friends with 2.0 megapixel camera
- Bluetooth 2.0 and Wi-Fi enabled

Was \$699

\$499 | V4446



Touch Diamond

- The HTC Touch Diamond is compact in size and features a 2.8" touch TFTLCD display, within a stunning formation of brushed steel and flawless faceted edges
- Features a vibrant touch-responsive user interface, TouchFLO™ 3D and ultra-fast HSDPA internet connectivity
- With TouchFLO™ 3D, users are able to add album artwork to their music, access videos and add photos to their contacts
- A 3.2 megapixel auto-focus camera will help users capture the perfect moment in style and 4GB of internal storage allows users to store all files
- Integrated GPS allows users to find their destination
- Bluetooth and Wi-Fi (802.11b/g) enabled



\$999 | V7839 | RENT \$9.41/wk*



3355 Cordless Phone and Answering Machine

- WDECT is a Wideband digital technology which delivers increased clarity, range and security
- Divert all calls to the integrated Digital Answering Machine by using the Do Not Disturb feature
- Orange backlit LCD Display and keypad enables easy use in all light conditions
- Talk Time: 7 hours
- Standby Time: 10 days

\$169 | U9321

Includes 2 extra handsets



Uniden® SOUNDS BETTER

7955 Cordless Phone and Answering Machine

- Premium 5.8GHz Digital Spread Spectrum Cordless Phone system offers optimum clarity
- Backlit LCD display on handsets and answering machine provides easy viewing during the day and night
- Diverts all incoming calls directly to the integrated digital answering machine by using the Do Not Disturb feature
- Wi-Fi capabilities allow users to operate up to 10 handsets, without interference to any other wireless networks.
- Talk Time: 5 hours
- Standby Time: 7 days



\$219 | U9325

Includes 1 extra handset

**noScan LiDE 200
Scanner**

Canon
advanced simplicity

fast, high quality scanning for those with no time to waste.
Contact image sensor
300 x 4,800 DPI optical resolution
second A4 scan
one-touch buttons [scan, copy, PDF file, email]
connection: Hi-Speed USB 2.0
power supply via USB port [additional power not required]
8 three-colour LED light source
Advanced Z-Lid and upright
scanning



\$49 | V9623
Also Available:
oScan 5600F Scanner | V9628 | \$249
oScan 8800F Scanner | V4265 | \$349

DYMO

LabelManager 210D - Desktop

\$89
V5450

**LabelManager 220P - Handheld**

\$99
V5451

**LabelWriter 400**

\$149
U8563

**LabelWriter 400 Duo**

\$399
U8565

**GT-1500 Flated Document Scanner with ADF**

EPSON

- 1200 x 2400 scan DPI
- 40 sheet ADF
- ReadyScan LED technology
- 18 PPM [using ADF]
- 48 Bit colour depth
- Three-line optical CCD
- 4 one-touch buttons



\$599

V7997 | RENT \$5.64/wk*

Also Available:
Perfection V500 Photo Scanner | V2206 | \$469
Perfection V700 Photo Scanner
T6629 | \$859 | RENT \$8.10/wk*

ScanMate i1120 Duplex Scanner

Kodak

- Smart touch scanning with Perfect Page and iThresholding
- Bitonal/grayscale/color: Up to 20ppm/40ipm
- 50 sheet automatic document feeder [ADF]
- Create single and multi-page TIFF, JPEG, RTF, PDF and searchable PDF
- Includes: Nuance Scansoft PaperPort; 11, Nuance Scansoft OmniPage 15 and Presto!BizCard5

\$599 | V9283

RENT \$5.64/wk*

Also Available:
i1220 A4 Duplex Document Scanner
U1271 | \$1249 | RENT \$11.77/wk*
i320 A4 Duplex Document Scanner
U0857 | \$3099 | RENT \$28.51/wk*

**CardScan Executive v8**

- Scans in colour in about 3 seconds
- Reads 7 languages
- Captures information from email, web pages and other electronic files [Not just business cards!]
- Works with Outlook, Palm, Windows mobile, smart phones plus ACT!, Lotus Notes and GoldMine



\$339 | U2695

Also Available:
CardScan Team V8 | V1250 | \$399

CardScan**Executive v8****POS Solutions****QuickScan QS 2500 Handheld Scanner - USB**

\$199 | V6971

Also Available:
Datalogic Magellan 1000 Omni-Directional Scanner - USB | T9226 | \$449
Cash Drawer CDY433 - Black | K0649 | \$199
Epson TM-T88IV-D42 Docket printer - USB - Black | T7524 | \$599 | RENT \$5.64/wk*
MYOB RetailManager 10 | V3264 | \$1583
Quicken Retail Point of Sale Pro 2008/2009 | V8191 | \$729

DS1 Cross Cut Shredder with Safe Sense

Fellowes

- Shreds up to 11 sheets
- Safe sense technology - immediately stops shredding when touched
- Confetti cut particles for extra security
- Also shreds credit cards, staples and small paper clips
- Auto start/stop feature ensures quick, easy shredder operation



\$199 | V0533

**C-220C Cross Cut Shredder**

Fellowes

- Powerful shredder for 5 to 10 users
- High performance engineering enables continuous use for multiple users
- Turbo jam release button clears jams quickly and easily
- Fast shred speed [normally found on heavy-duty office machines]
- Large capacity removable bin for easier waste disposal
- Auto-stop on jamming with indicator and auto-reverse significantly lengthens product life
- User-friendly control panel maximises ease of use



\$999

V7996 | RENT \$9.41/wk*



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Laser Printers

Colour LaserJet CP2025N Laser Printer

Ideal for small and medium business, with small work teams of 1-8 users. Exceptional colour print quality and speed ensures productivity and ease of use.

- Print speed: 21ppm mono / colour
- Resolution: 600 dpi with ImageRet 3600
- PCL6 (discrete), PCL5 & PS 3 emulation (UPD)
- 128 MB RAM (expandable to 384 MB)
- 540 MHz processor
- Connectivity: High-Speed USB 2.0, Integrated 10/100 onboard networking
- 250 sheet input tray, 50 multi-purpose tray (optional 250 sheet tray)

\$899 | V9564 | RENT \$8.47/wk*

Also available:

CP2025DN | V9565 | \$999 | RENT \$9.41/wk*

CP2025X | V9566 | \$1149 | RENT \$10.83/wk*



NETWORK READY

Laserjet P1006 Mono Laser Printer

- Print speed: 17ppm mono
- Connection: USB 2.0
- Memory: 8MB (Maximum)
- Processor: 266 MHz
- Resolution: 600 x 600 dpi
- Input Tray: 150 sheet, single-sheet priority feed slot
- Monthly duty cycle: 5,000 pages
- 1 Year Warranty



\$199 | V3595

Also available:

Laserjet P1005 Mono Laser Printer | V3019 | \$299

Laserjet P2014 Mono Laser Printer | V4327 | \$499

T644DN Mono Laser Printer

- Print speed: 48ppm mono / 18ppm duplex
- Connection: Parallel/USB/Ethernet 10/100 Base TX
- Memory: 128MB (640MB Maximum)
- Processor: 514 MHz
- Resolution: 1,200 x 1,200 dpi
- Input tray: 500 sheet, 100 sheet multi purpose tray
- Monthly duty cycle: 250,000 pages
- 2 Year Onsite Warranty

LEXMARK



NETWORK READY

\$2499 | V8752

Also available:

T644N Mono Laser Printer | V0455 | \$8199 | RENT \$20.75/wk*

T644DTN Mono Laser Printer | T3887 | \$2999 | RENT \$27.60/wk*



CLP-300 Colour Laser Printer

Whisper-quiet operation, the NO-NOISE engine design means the toner is stored in a fixed cartridge mechanism, eliminating noise and vibration. It also simplifies toner changes, there are no heavy toners to change, just small, easy-to-access toner bottles.

- Print speed: Up to 16ppm mono / 4ppm colour
- Print resolution [colour]: 2400 x 600 dpi
- Total media capacity: 150 sheets
- Memory: 32MB
- Connection: Hi-Speed USB
- Monthly duty cycle: 24,200 pages
- 1 Year Onsite Warranty



\$169 | U4583

Also available:

CLP-350N Colour Laser Printer | V2270 | \$359

Phaser 8560DN FUJI XEROX Solid Ink Colour Printer

- Print speed: 30ppm colour / mono
- Connection: USB 2.0/Ethernet 10/100 Base TX
- Memory: 256MB (1GB Maximum)
- Processor: 600 MHz
- Resolution: Up to 2400 FinePoint
- Input tray: 525 sheet, 100 sheet multi purpose tray
- Monthly duty cycle: 85,000 pages
- 1 Year Onsite Warranty



\$500
TRADE IN*



NETWORK READY

\$1999 | U9155 | RENT \$18.86/wk*

HL-5250DN Mono Laser Printer

- Print speed: 28ppm mono / 9pppm duplex
- Print resolution: 1200 x 1200 dpi
- Total media capacity: 300 sheets
- Memory: 32MB (expandable to 544MB)
- Connection: Parallel/USB 2.0/Ethernet 10/100 Base TX
- Duplex mode for dual sided printouts
- Monthly duty cycle: 20,000 pages
- 1 Year Warranty

brother at your side



NETWORK READY

\$399 | T3555

Also available:

HL-5270DN Mono Laser Printer | T5554 | \$499

HL-7050N Mono Laser Printer | J2055 | \$1099 | RENT \$10.36/wk*



CLP-610ND Colour Laser Printer

- Print speed: 20ppm colour / mono, 10ppm duplex colour / mono
- Connection: USB 2.0/Ethernet 10/100 Base TX
- Memory: 128MB (364MB Maximum)
- Processor: 360 MHz
- Resolution: 2,400 x 600 dpi
- Input tray: 250 sheet, 100 sheet multi purpose tray
- Monthly duty cycle: 65,000 pages
- 1 Year Onsite Warranty



\$649 | V6358 | RENT \$6.12/wk*

Also available:

CLP-660ND | V6360 | \$899 | RENT \$8.47/wk*



KONICA MINOLTA

\$150
CASHBACK

PagePro 4650EN Mono Laser Printer

- Print speed: 34ppm mono
- Connection: Parallel/USB 2.0/Ethernet 10/100 Base TX
- Memory: 128MB (384MB Maximum)
- Economical running costs
- Processor: 500 MHz
- Resolution: 1,200 x 1,200 dpi
- Input tray: 550 sheet, 150 sheet multi purpose tray
- Monthly duty cycle: 150,000 pages
- 1 Year Onsite Warranty

\$649 | V8895
BEFORE CASHBACK YOU PAY

\$799 | RENT \$7.53/wk*

*For terms and conditions including RentSmart see page 20. *Visit www.ht.com.au/ptype/printing_and_ink/promotion_list.htm for detail on the Cashback.

*Available from www.fujixeroxprinters.com.au

Multifunction & Printers

MFC-9440CN Colour Laser Multifunction

This feature packed multifunction is network ready as standard making for an ideal solution for the business environment. Thanks to a direct print feature you can print documents from USB memory stick eliminating the need for a PC.

Print/scan/copy/fax
Print/copy speed: 20ppm colour/mono,
16ppm colour/mono

First page out: <16secs mono

Resolution: 2,400 x 600 dpi

Processor: 300 MHz

RAM: 64MB (576MB Maximum)

Input tray: 250 sheets, 50 sheet multi purpose

tray (35 sheet ADF)

Monthly Duty Cycle: 35,000 Pages

Connection: USB 2.0 / Ethernet 10/100 Base TX

\$1149 | V1797 | RENT \$10.83/wk*

BONUS*



NETWORK READY

LaserJet M1319F Multifunction

Print/scan/copy/fax

Print/copy speed: 19ppm mono

First page out: <8.5secs mono

Resolution: 1,200 x 1,200 dpi, HP REt

Processor: 240 MHz

RAM: 32MB (Maximum)

Input tray: 250 sheet,

10 sheet priority tray

(30 sheet ADF)

Monthly duty cycle: 8,000

pages

Connection:

USB 2.0

\$339 | V8821



OfficeJet Pro L7590 Multifunction

Print/scan/copy/fax

Print/copy speed: 35/34ppm mono/colour

Resolution: 4,800 x 1,200 dpi

Processor: 192 MHz

RAM: 64MB (Maximum)

Input tray: 250 sheets (50 sheet ADF)

Monthly duty cycle: 7,500 Pages

Connection: USB 2.0/Ethernet 10/100 Base TX

\$100 CASHBACK!

NETWORK READY

379 | V7713

BEFORE CASHBACK YOU PAY \$479



*For terms and conditions including RentSmart see page 20. *Bonus via redemption from www.brother.com.au. *Cashback via redemption from HP.

brother at your side

Colour LaserJet CM1312NFI Multifunction

Prints so colourful you'll swear they came right off a printing press. Rely on this multifunction colour laser printer for consistent, high-quality results.

- Print/scan/copy/fax
- Print/copy speed: 12ppm colour; 8ppm mono
- First page out: <26secs mono, <32secs colour
- Resolution: 600 x 600 dpi, HP ImageREt 3600
- Processor: 450 MHz
- RAM: 160MB (Maximum)
- Input tray: 150 sheets (50 sheet ADF)
- Monthly duty cycle: 30,000 Pages
- Connection: USB 2.0/Ethernet 10/100 Base TX
- 1 Year Warranty



NETWORK READY

LaserJet M2727NF Multifunction

Print/scan/copy/fax

Print/copy speed: 27ppm mono

First page out: <7secs mono

Resolution: 1,200 x 1,200 dpi, HP REt

Processor: 264 MHz

RAM: 64MB (320MB Maximum)

Input Tray: 250 sheets (50 sheet ADF)

Monthly duty cycle:

15,000 pages

• Connection:
USB 2.0/Ethernet
10/100 Base TX



NETWORK READY

\$999 | V5431

RENT \$9.41/wk*

Also available

Laserjet M2727NFS Multifunction

V5431 | \$1199 | RENT \$11.30/wk*

MFC-7840W Wireless brother at your side Mono Laser MFP

- Printer/copier/scanner/fax
- Printing and copying speed:
Up to 22 ppm
- Print Resolution: Up to 600 x 600 dpi
- PC Connection: USB, Ethernet 10 Base-T/100 Base-TX, IEEE 802.11b, IEEE 802.11g
- Scan resolution: 600 x 2400 dpi
- 1 Year Warranty



NETWORK READY

\$549 | V7986

Pixma iX4000 Inkjet Printer

- Print borderless photos up to A3+
- Resolution: 4,800 x 1,200 dpi
- 4 individual ink tanks
- Connection: USB 2.0
- Print speed: 18ppm black/ 14ppm colour
- Capacity: 150 sheets
- 1 Year Warranty



\$539 | T9252

Canon advanced simplicity

iP100 Portable A4 Printer

Borderless printing up to A4

Print speed: 20ppm

black/14ppm colour

• Resolution:

9,600 x 2,400 dpi

• Battery life:

Approx. 290 sheets

• Capacity: 50 sheets

• Connection: USB 2.0, infra-red, optional Bluetooth

• 1 Year Warranty



NEW

\$449 | V8497

harris technology

SAVE
\$200

NETWORK READY

27 PPM
COLOUR

KONICA MINOLTA

Magicolor 5440DL Colour Laser Printer

Colour laser printing has never been as fast or as convenient as this. With networking as standard, colour print speeds higher than most black and white printers, the magicolor 5440DL is one of the best value for money printers in its class. Not only does the printer come with revolutionary polymerised toner, it also can print up to 2400 x 600 dpi - making the quality of the prints outstanding!

\$499

| V8291



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*RENTSMART

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UCP 700W



UCP 1100W

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small business

heavyweight performers

now with a light touch



Epson Stylus Photo TX800FW



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The Epson Stylus™ Office printer range is a design innovation for the small office. It has everything – the latest **light touch-screen LCD display**, up to 40ppm, (the fastest inkjet printer in its class*), auto-document feeder, fax, WiFi, LAN and optional auto-duplexing. Productivity is increased with a choice of high capacity ink cartridges, and you only replace the cartridge you use. What's more, you can choose an office model with DURABrite™ Ultra for durability or Claria for high definition prints. These small, stylish, heavyweight performers will carry all your office needs!

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